



Manufacturers Record

Reg. U. S. Patent Office

REFERENCE
DO NOT LOAN

Pine for Paper

ONE OF THE South's resources which has made possible the establishment in the recent past of 17 huge modern mills involving the investment of nearly 100 million dollars.

OCTOBER, 1937



Bank-Sloping

DOWN in Cleburne County, Ala., this "Caterpillar" Diesel RD7 Tractor with a No. 66 Grader is doing three times as much work as a former gasoline-powered tractor, and is saving \$1000 a year on fuel-costs. Any wonder Cleburne is 100% "Caterpillar"? They have a fleet of 7 "Caterpillar" track-type Tractors and Graders, and a "Caterpillar" Auto Patrol. The county builds and maintains better roads, and at the same time saves money.



Pulling the Ditches

CATERPILLAR TRACTOR CO.

PEORIA, ILL.

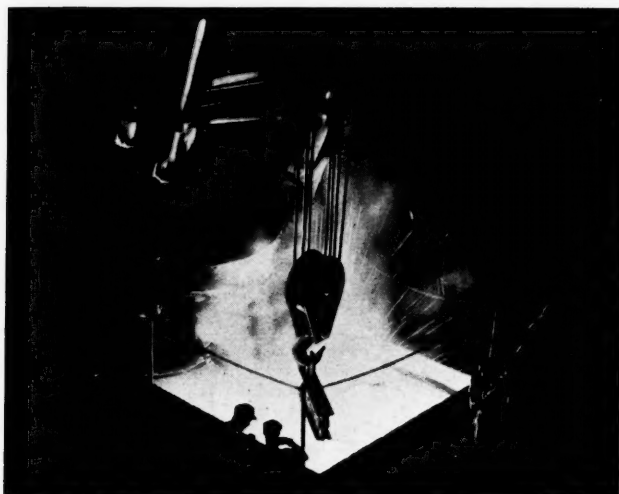


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**WORLD'S LARGEST MANUFACTURER OF DIESEL ENGINES,
 TRACK-TYPE TRACTORS AND ROAD MACHINERY**

TABLE OF CONTENTS

**OCTOBER
1937**

Volume CVI No. 10



Pouring stainless steel at the Rustless Iron & Steel Corp., Baltimore, Md.

MANUFACTURERS RECORD

Devoted to the Upbuilding of the
Nation Through the Development
of the South and Southwest as the
Nation's Greatest Material Asset

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BLUE BOOK OF SOUTHERN PROGRESS**

Member
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OCTOBER NINETEEN THIRTY-SEVEN

EDITORIALS

Pine for Paper	Cover page
The Outlook	31
As We See It	32-33

FEATURE ARTICLES

The South's Pulp and Paper Industry	34
\$20,500,000 for Oil Lands and New Texas Refinery	36
Installment Credit Terms Must Be Within Reason	37
by A. E. Duncan	
Rustless Iron & Steel Expands Plant and Equipment	37
An Industrial Development of Magnitude	38
Mayari R, A Corrosion Resistant High Strength Steel	
by R. S. A. Dougherty	39
Yesterday, Today and Tomorrow in Stainless Steel	40
The Zinc Industry Gets Busy	41
The Joe Wheeler Dam	42
Air Filters In Industry	42
Charlotte's New Air Port	43
September Contracts Total \$59,532,000	44
Representative Projects in the South Last Month	46
Our Stake In Conflict Between Japan and China	66
by Eric Morrell	
Items of Interest	68-70

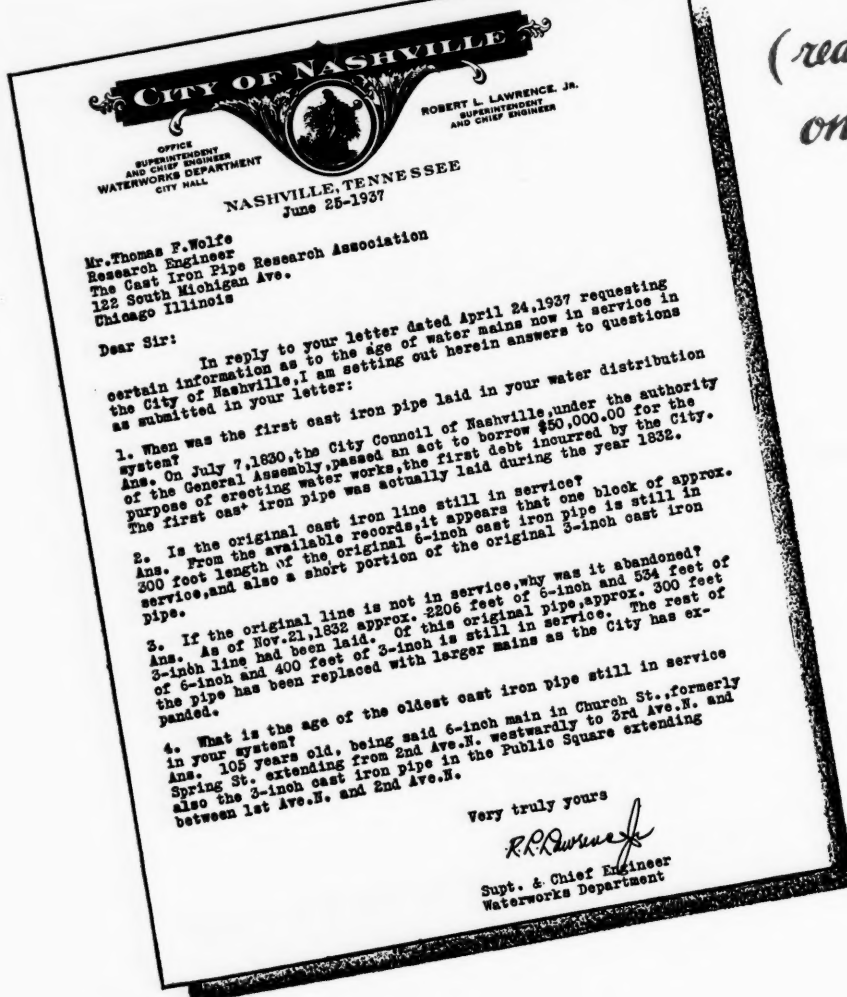
SPECIAL DEPARTMENTS

Iron, Steel and Metal Market	48
Lumber News of the Month	50
Good Roads and Motor Transport	52
New Ways of Doing Things	54
Financial	58
Industrial News	62
Trade Literature	64
Index for Buyers	84
Index of Advertisers	86

COVER ILLUSTRATION—Wood yard at Champion Paper and Fibre Co.,
mill, Houston, Texas.

A letter of interest to water works men

(reading time
one minute)



We have asked Nashville and 211 other cities whether *original cast iron mains* in their water distribution systems were still in service. Mr. Lawrence's letter (reproduced by permission) is typical of 203 others out of 212—96 percent—whose answers were—yes. Only a material with great *bursting strength, beam strength, crushing strength, impact strength, and effective corrosion resistance*—indispensable requirements of an underground water main—can render such enduring and economical service.

THE CAST IRON PIPE RESEARCH ASSOCIATION

Thomas F. Wolfe, Research Engineer, 1013 Peoples Gas Building, Chicago, Illinois



THE OUTLOOK

***I**T IS NOT* possible to judge the business future by signs formerly regarded as reliable barometers. In the new scheme of things artificial elements have been introduced. Prosperity by scarcity is the dictum.

We are inclined to disagree, however, with the view of those who, seeking a reason for the recent drop in security prices, fear that another depression may be near. There are a number of indications pointing to the contrary, not the least being the fundamental fact that the country is not over-bought.

Abundant crops will give farmers an estimated cash return of nine billion dollars. This is a powerful factor for sustained buying.

While there has been some let down in building, the trend is likely to be toward increased activity instead of the reverse because of the shortage of houses. Instead of homes for an increased population, we have not kept up with the slack of the depression's earlier years.

The money and credit situation, which has been made easy, is being made still easier. The Federal Reserve Board has made recommendations to banks concerning installment loans for commercial purposes, mortgages on real estate, and recommends loans on classes of security heretofore not considered eligible for rediscount.

Higher wages are making plain the need for modern equipment to sustain profits.

The encouraging thing before the Southern states particularly is the increasing recognition given the resources and advantages of this section. Private industrial development here has for some time led public works construction; giant enterprises are dotting the country from Maryland to Texas. The South's abundance of raw materials, its American labor, its longer working days, and equable climate are making a convincing appeal to industrialists. Undeniably the South is set towards progress greater than ever before.

When the fact is considered that capital is pressing for investment, there is reason to believe, barring unexpected adverse developments, the present rate of activity will be maintained for some time and will increase, notwithstanding the handicaps government has forced upon business.

The demands of our domestic market, greater than any other market in the world, call for a lot of production. It is to be hoped the politicians will eventually see that only by the encouragement of private industry can the country ultimately prosper and labor be employed. It is a time to put aside dreams of Utopia and forswear foolishness.

As we see it—

To Protect and Develop Industry

A new era in cooperation of government with business is in sight for the Southeast. Nine governors—

Clyde R. Hoey—North Carolina
Olin D. Johnston—South Carolina
Bibb Graves—Alabama
E. D. Rivers—Georgia
Fred P. Cone—Florida
Richard W. Leche, Louisiana
Gordon Browning—Tennessee
A. B. Chandler—Kentucky
Hugh L. White—Mississippi

through the newly organized Southeastern Governors Conference, are pledged "To aid and protect industrial development," as outlined on another page of this issue under the heading "We, the Governors of the Southeastern States."

Some of these states have been leaders in the movement to create a better spirit of cooperation among public officials, employers and employees. Industrial progress in these states has been pronounced in recent months, but reiteration at this time of the declaration of sound policies and objectives will inspire confidence in capital and management to further expand industry in the South.

The South as a whole has been moving forward with more than \$186,000,000 invested in new plants and expansions since the first of the year, or a total industrial investment in excess of \$500,000,000 in the past two years.

The organization of the Southeastern Governors Conference is the outgrowth of plans developed some months ago by L. W. Robert, Jr., recently Assistant Secretary of the Treasury, and President of Robert & Company, consulting engineers with headquarters in Atlanta and offices in Washington and New York. As an interesting illustration of the upward trend of Southern industry and the opportunities the South offers it is worthy of note, that this firm of engineers has successfully directed and handled more than \$350,000,000 of new industrial enterprises in the Southeast, an accomplishment that places them in the front rank of American engineering and architectural institutions.

In February 1937, the MANUFACTURERS RECORD sketched Mr. Robert's proposal to initiate an extensive educational campaign to develop and locate industries in the South. The aim was to work for sound decentralization through the cooperation of state and business development organization, railroads, power companies and community bodies. The enterprise was started without ballyhoo, waste of money and time in futile meetings. Men of practical experience went straight to the heart of the matter.

The first hurdle of securing cooperation and active support of all divergent interests has been passed, and the progressive organization of the Southeastern Governors Conference, of which Mr. Robert is Industrial

Consultant, is actively functioning. The purpose is to keep the Southeast's advantages prominently before the nation and to supply without cost to any organization set-up, any special engineering survey facilities that may be required from the interest aroused on the part of any industry.

Beginning this month, a series of constructive advertisements in national publications, and over the radio, will disseminate facts about the Southeast, its advantages and development, that will be of value to individuals and interests contemplating the establishment or expansion of industries in the South.

Prosperity From Abundance

Last month beef on the hoof at Chicago reached the highest point in stock yard history. It is already far out of reach of many households. The *Charleston Post* says many people in the United States will have to go without a normal supply of meat this year because the New Dealers, in their efforts to give everybody a more abundant life, killed off a large part of the pigs and plowed under a goodly portion of the grain, and then nature followed with wind storms and droughts sufficient to make the scarcity acute.

Prices are high now because there are not enough cattle or hogs. Consumers have more dollars, but they are 59-cent dollars and the owners cannot get as much meat as they did three or four years ago.

The *Post* says: "The meat scarcity is only one of the examples of the folly and danger of attempting by governmental measures to interfere with natural and economic laws. * * * There can be no true prosperity that is not based on abundance rather than scarcity."

Just A Notion Perhaps

An Associated Press dispatch from Concord, New Hampshire, tells of a conference to be called by Governor Murphy "to present a united defense against Southern competition which seeks more favorable freight rates for that territory."

There is no doubt of the fact that New England has felt in textile manufacturing the effect of Southern competition. That is one of the reasons Senator Lodge of Massachusetts is quoted as in favor of the wage and hour bill, which would remove the wage differential given the South, a differential recognized generally as equitable and right.

Space doesn't permit rehearsing all the angles of a situation that has been discussed many times. New England lost her mills because of the economic advantages possessed by the South. Any differential in wages which the South has is based on sound economic reasons.

New England has an advantage now in freight rates. The South is not trying to have New England's rates raised, and if the thought expressed in the dispatch

As we see it—

(Continued)

quoted above prevails, it would seem that the conference is being called from an unworthy motive.

It is to be hoped that Senator Lodge's idea about the wage and hour bill does not prevail widely in New England, because it is the opinion of business men generally that this measure is subversive to the best interests of business. If it is adopted it is likely to live to haunt New England, as it will every other section of the country and labor too.

The writer recalls an interesting conversation with prominent New England business men about a petition which had the approval of the then Governor of Massachusetts, asking the appointment of a commission to go to Washington to persuade Congress to pass a national labor law. This was thirty years ago and a lot of water has gone over the dam since then. The plan was abandoned because in those days state's rights were still regarded as a necessary thing to preserve.

We now have national labor laws, and a lot of other laws. Is New England to add to the confusion because of selfish and perhaps temporary interest? New England has accomplished too much and has been too fine an example to other sections to go off at a loose end when the country needs more than anything else sober thinking instead of impetuous action. There has been already too much of the latter.

Russian Cotton

The arrival and sale in New York recently of 6,000 bales of cotton from Russia is stated to be the first sale of Russian cotton in the United States.

According to W. D. Maxwell of Texas, who made the importation and has just returned from an investigation of cotton growing in Russia, this particular shipment is of a fair grade with staple length of 15/16-in. Mr. Maxwell points out however, that Russia grows a much superior grade with staple length ranging from 1½ to 1⅝ inches, and is raised from Mexico-Arizona Pima seed, most of which came from Texas.

Government officials in Russia told Mr. Maxwell that last year's production almost doubled the estimated crop of 2,000,000 bales, and they believe the country has a potential production in excess of 10,000,000 bales.

Dallas Plans Big Airport

In calling attention to an article in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN describing the huge airport being built at Baltimore to accommodate airships coming over the sea as well as planes from the interior, the *Dallas Morning News* points out very convincingly the desirability of Dallas developing a large airport of the most modern type and comments on the fact that "Few cities in the world have the opportunity to provide for their future aviation that the city of Dallas has. This Texas City, more fortunate

than a great many, can have a downtown airport with a choice of sites located on any one of several streets 130 feet wide." 500 and 600 acre fields are available within 10 minutes drive from the heart of the downtown business district, and it is stated that the work can be done at a minimum of expense.

As the *News* says "Close-in, time-saving terminals are a crying need today and will be indispensable in the not distant future."

The South as a whole will do well to give attention to the opportunity of greater development, in keeping pace with the marvelous growth of air travel and the up-to-date facilities which are being provided by wide-awake cities for the expeditious handling of passengers and freight.

We are illustrating in this issue a modern airport recently developed at Charlotte, North Carolina.

Against Reason

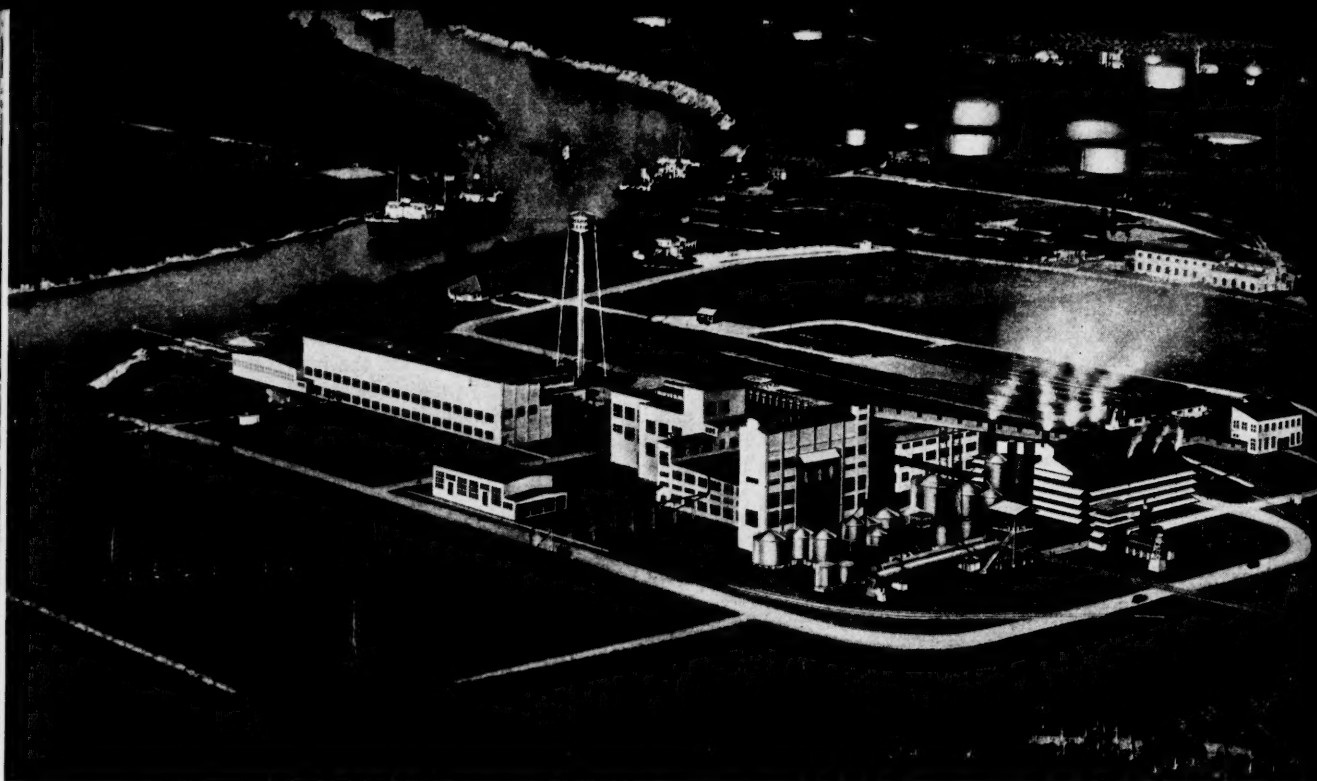
Chairman Frank R. McNinch, of the Federal Power Commission, says:

"The concrete and urgent problem before the power industry today is, as I see it, not whether it can sell all of the energy it can produce and earn a fair profit for the service rendered, but whether it has the foresight and imagination to build and build promptly and on a large scale more generating plants to supply the rapidly increasing demand. More time spent in planning for construction and expansion and less in litigation and resistance to regulation would be good business."

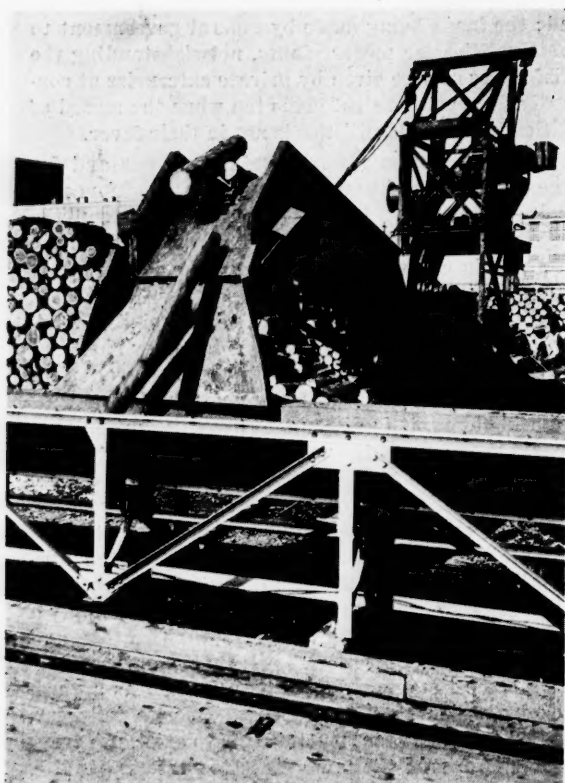
Does Mr. McNinch forget the seven TVA's that sooner or later are to spread their lines throughout the land; the loans being made by federal government to municipalities for power plants, notwithstanding the satisfactory service given by private enterprise at constantly decreasing rates? This too when the record of politically managed utilities is not in their favor.

Power production for industrial purposes and for home consumption has markedly increased. The country is electrically minded. It is well to extend the facility of electricity as far as the demand justifies, but there is a threat hanging over the industry. It cannot be blinked nor pushed aside. Public utilities, despite this threat, have been adding to their facilities, but it is against reason to expect that they shall not contest efforts that are destructive of their wellbeing. Mindful of their obligations to their tens of thousands of stockholders, it is difficult to avoid litigation that appears necessary if they are to exist.

It has been pointed out many times in this place that the functions of government do not consist in competing with private industry, nor attempting to do the things that under our democracy private industry is intended to do and can do better than government. Government uses taxpayers' money to supply a product which does not bear a capital obligation, and sets it up in competition with private enterprise, while at the same time pointing to this product as a yardstick by which to measure cost. Private industry, assailed as it has been, must, if it is to exist, use every reasonable means the law grants to preserve its life.



The South's Pulp and Paper Industry



AS the Technical Association of the Pulp and Paper Industry meets in Savannah this month, the South will welcome the opportunity to greet these engineers and scientists of a rapidly growing industry, and to show them a part at least of what has been accomplished in the South's pulp and paper production that has brought about the erection or planning of seventeen mills in the recent past, involving an investment of close to \$100,000,000.

Doubtless the experts who attend this meeting, besides giving thought to the technical problems associated with their work, and observing the improved processes that have been adopted in modern Southern plants, will give a considerable share of their discussion to the resources of the South, not only for kraft paper, but in the important field of newsprint pulp production.

Although the United States production of wood pulp, amounting to one-fifth of the world total, is greater than that of any other country, we spend in the neighborhood of \$200,000,000 annually for the purchase of foreign pulp, and latest reports indicate a continued rise in quantity with substantial increased cost.

Upper — Modern paper mill, Houston. Lower—Wood conveyor

Over 90 per cent of recent imports of paper and paper products was comprised of newsprint, while in addition to pulp and paper imports, from 10 to 15 per cent of our domestic wood pulp is produced from foreign pulp wood. Newsprint can be produced in the South at a saving of probably 40 or 45 per cent, and provide employment for thousands.

Timber Conservation

The recent rapid increase in the South's manufacture of paper and pulp has directed attention to the desirability of an adequate timber conservation policy on the part of every such enterprise, and of other timber owners. While doubt has been expressed in some quarters as to how generally this has been recognized, it is likely to be found to have been in most instances a major part of the program of every modern mill. Self interest for future production dictates it, and in this will lie assurance to other industries using lumber for raw material.

The plan adopted by the American Pulp Wood Association includes provision for leaving at least four thrifty seed trees per acre where less than 75 seedlings are not already established, and that stands of timber seven inches or less in diameter at the base should be thinned so as to leave an average 75 trees per acre.

Collaboration with state and federal agencies, together with the utilization of waste from logging operations and worked out turpentine lumber, will do a great deal to insure the protection of rapid growth slash pine. Further indication of the efforts being made is shown by one mill which recently sent out over 20,000 letters to farmers and other private landowners urging them, with specific information, to adopt conservation methods.

Utilization of Waste

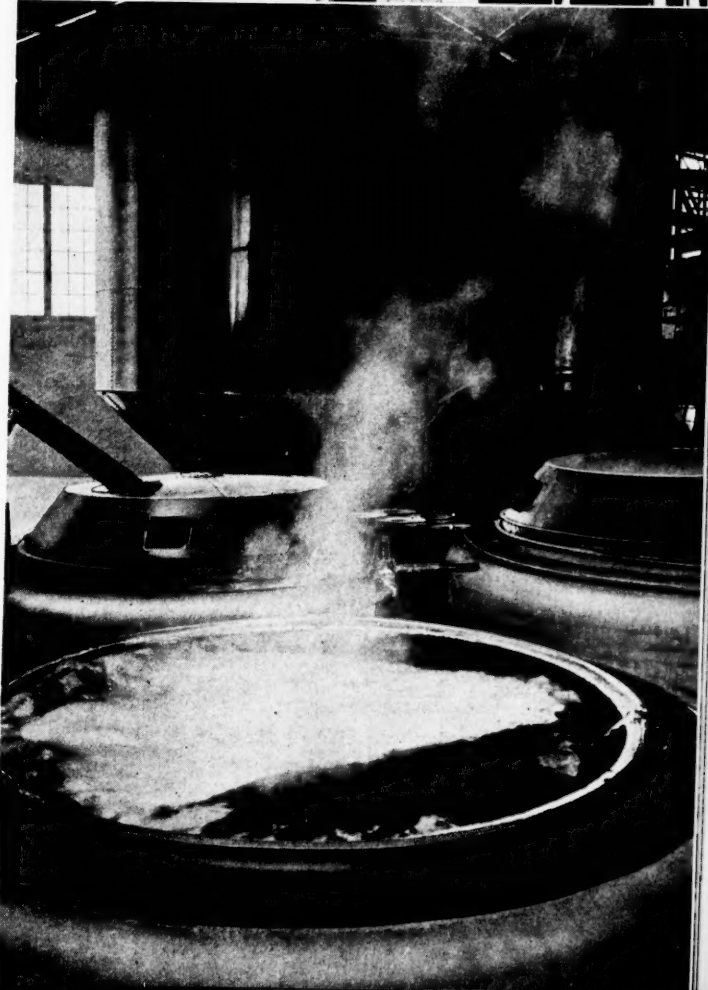
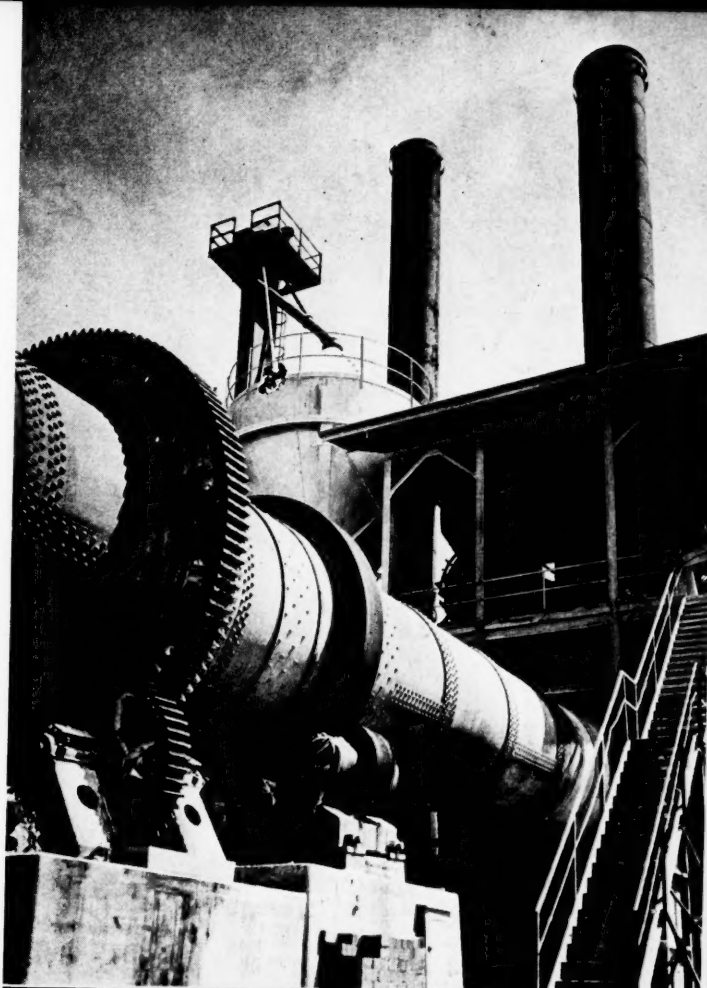
Recognizing the possibilities of recovery from the waste of pulp mills, constant research is being directed toward increased utilization. With the phenomenal advance of plastics and other chemical discoveries, the time is probably not far away when present mill waste will be converted into fabricated construction materials stronger than wood itself. Liquid wastes that caused complaints of stream pollution may soon be turned to use for surfacing of secondary roads and become a source of industrial alcohol.

Slash Pine for Newsprint

Undoubtedly a new era has begun with the use of young slash pine for newsprint pulp. Editions of the Lewiston, Maine, "Daily Sun" for June 26, printed on paper made experimentally by the Great Northern Paper Company from Southern slash pine pulp, were entirely satisfactory and the slight creamy tint was barely noticeable. This example of the first newspaper produced from Southern pine in a commercial mill is proof that Southern newsprint is no longer a future possibility, but a present actuality.

Plans for the erection of a \$6,250,000 newsprint pulp mill at Lufkin, Texas, are complete and construction is expected to begin soon.

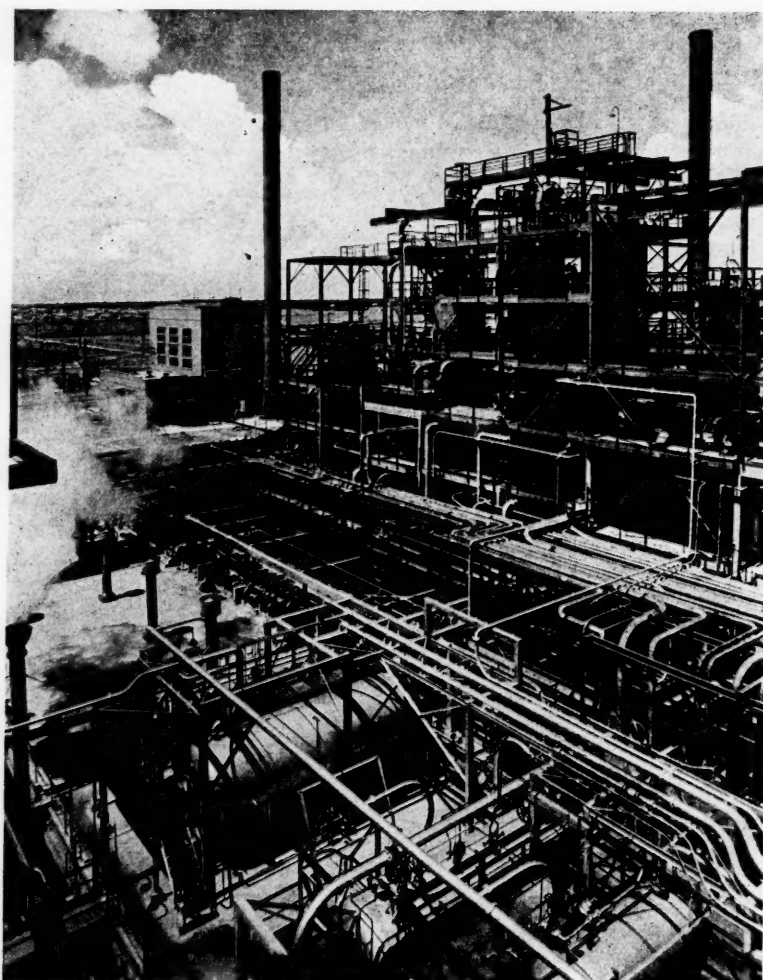
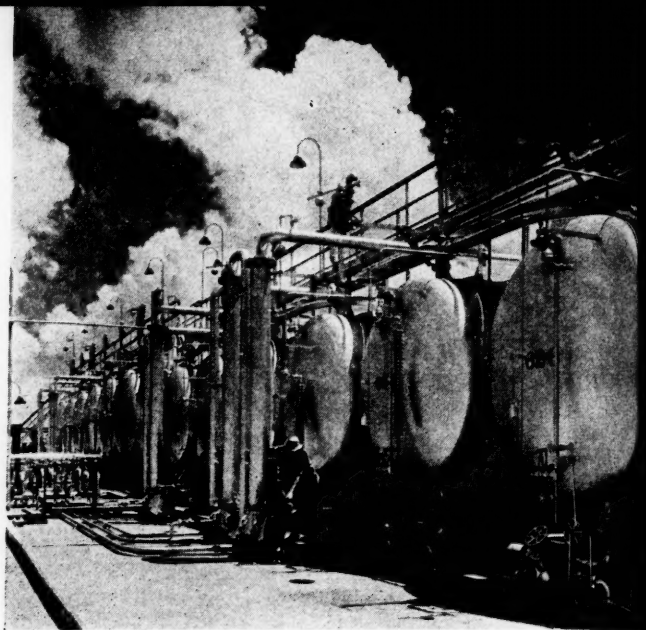
Upper—Lime plant. Lower—Caustic soda tanks. Pictures on this and opposite page Champion Paper & Fibre Co., new plant, Houston, Texas



\$20,500,000

For Oil Lands

and New Texas Refinery



COMMENSURATE with the expansion evidenced by other industries throughout the South, is the development of the Atlantic Refining Company's activities during the past eighteen months.

At the present time the Company is engaged in drilling 52 wells in Northern Louisiana and the Southwest and has an interest in 21 additional wells being drilled by others. The total number of oil-producing wells drilled by the Company since January 1, 1936, plus those drilled by others in which the Company has an interest, run to 519.

Among the important areas acquired of producing properties or undeveloped leases which have undergone extensive development in this period, are: the Aransas Pool, Southwest Texas; the Patton-Hauschild Pool, Kansas; the Lisbon Pool, Northern Louisiana, and the Leck-Henderson and Goldsmith Pools in West Texas. Substantial additional acreage has also been acquired in the East Texas Pool; in the Palacios Area, Texas Gulf Coast; and in an extension of the Dickinson Pool, Texas Gulf Coast. In the latter area the Company recently brought in its deepest producing well at a depth of 8,098 feet.

Eleven hundred miles of pipe lines of companies affiliated with The Atlantic Refining Company link producing areas in East, Southwest and West Texas, and New Mexico, with terminals on the Texas

(Continued on page 76)

Upper—Naphtha Plant, Atlantic Refining Co., Atreco (Texas) refinery

Lower—Part of the new combination distillation and polymerization plant, same refinery

Instalment Credit Terms Must Be Within Reason

THE current trend of instalment financing toward lower down payments and longer maturities was inspired largely by the need for a sales stimulus in the depression period. With the return to better business this stimulus is no longer necessary and the wiser heads of the finance business are anxious to see a return to normal terms.

When durable goods are sold on time at down payments which make purchasers feel that they are renting instead of buying, and maturities are extended beyond the usual life of the article financed, the so-called sale is a dangerous one and is an invitation to repossession and eventual loss. Therefore, bearing in mind that the principle of instalment selling depends upon elastic credit qualities, nevertheless, terms must be kept within reason; down payments must be sufficient to give the purchaser an appreciable equity and maturities must be kept within the useful life of the article financed. The balance due on a given article financed, should at all times be not more than the reasonable amount which might be realized at sale should repossession become necessary. Only on that basis can instalment selling be controlled and allowed to give its true economic benefits.

The lowering of down payments and over-extension of monthly payments has been due largely to the granting of concessions in dull business times which, today, is no longer necessary. Greater volume of this financing, however, has been carried on in the automobile and appliance financing fields; more so than it has with so-called durable goods, constituting machinery and equipment. It has however, found itself in this latter classification to some extent and should be eradicated just as surely as it should be done away with in any other field where the instalment principle applies.

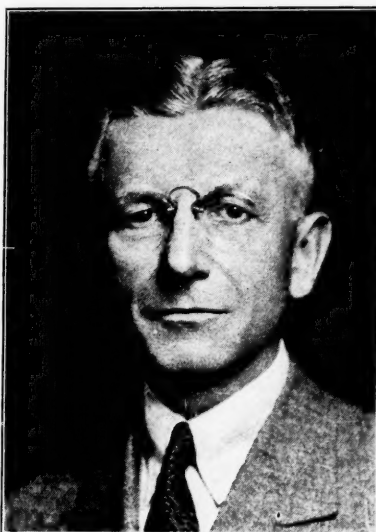
We are all familiar with the creditable showing of the finance companies in the recent great depression. It is well known, however, that in times of business prosperity the lowering of credit standards, which includes down payments and maturities, is conducive to excessive repossession and loss during a period of business recession. These cycles of prosperity and recession, so-called, almost like the seasons, are due to come and an unreasonable extension of credit in good times can only mean one thing in bad times—loss.

There can be no final profit in a sale that is made on an unsound time payment basis. Repossessed merchandise immediately competes with new merchan-

BY

A. E. Duncan

Chairman, Commercial Credit Co.



Blackstone Studios, N. Y.

dise. It must be resold and besides being resold, usually at a loss, its very resale as a rule, takes a prospect for a new product right out of the market.

We have consistently avoided introducing policies which would tend to lengthen maturities of finance transactions; rather we have only reluctantly considered meeting competitive tactics as we have had to meet them in the line of business. We are, however, determined to keep instalment financing on a safe and sound basis as far as it is within our power to do so for the protection, not only of ourselves, but for the manufacturer, dealer and buyer as well. Our long experience has taught us just what should be required as down payments on various types of merchandise and this same experience has very clearly shown us what the maximum maturities on these same types of merchandise should be.

We are urging all with whom we do business to cooperate with us in preserving a system which is so indispensable to our economic future—the instalment system soundly administered. We are also urging other finance companies, banks and all who may be engaged in financing instalment purchases to cooper-

ate with us in controlling down payments and maturities for the ultimate good of everyone concerned.

Rustless Iron & Steel Expands Plant and Equipment

The improvements and equipment installed at the plant of the Rustless Iron & Steel Corporation, Baltimore, will increase the capacity to 40,000 tons of stainless steel annually, and to 12,000 tons of rerolling and forging billets.

An inspection of these larger facilities was made the occasion for a visit by 350 executives of steel and other interests from other cities. It was a notable occasion from many aspects.

President C. E. Tuttle, at a luncheon for the guests, dwelt upon the romance connected with the advent of rustless or stainless steel in the metal world, and incidentally referred to the unique position of his plant, which he said, with possibly one exception, is the only commercially operated manufacturing plant in the world whose operations are directed solely to the manufacture of rustless or stainless iron and steel. Others produce it by other processes and as a division of other steel operations, but this Baltimore company gives its entire time and thought to the product which its name describes.

Mr. Tuttle said in the course of his remarks: "Stainless steel development on a substantial scale has been within the past ten years. Estimates in dollars of the extent of loss from rust are pure speculation, but I have seen the statement seriously made that the rust bill amounts to \$3,000,000,000 annually. Structural engineers always make liberal allowances for loss of strength due to rust. Metallurgists from early beginning have been seeking a product to withstand rust ravages, and they have found in rustless steel a material, which in proper composition and properly applied, will withstand progressive corrosion on almost any media. To me romance lies in the illimitable opportunities in such a field."

Unfortunately, space will not permit describing in greater detail the interesting event mentioned above. Press time will only permit a brief reference to the occasion of September 30.

The new equipment of the plant includes:

A three-high type 12-inch merchant bar mill housed in a 240 x 80 foot monitor type building and equipped with a ten ton 80-foot span overhead crane, billet heating furnaces, cooling pit, etc., three 12-ton electric furnaces, equipped with 3,500 KVA transformers. A 60 x 323 foot brick and steel building houses equipment for coal drying and finishing Rustless steel bars in straight lengths.

An Industrial Development of Magnitude



Paper Makers Chemical Division plant, Atlanta, Ga.

THE Hercules Powder Company organized in 1913, will celebrate its twenty-fifth anniversary in 1938. For nearly this entire period, Hercules has followed a program of expansion in the South that has kept pace with the economic development of the Southern states. New markets throughout the world have been opened and a demand created for Southern products, thus benefiting the producers of Southern raw materials and helping to bring prosperity to the Southern states. Hercules' program in the future will be one of further expansion in the South with greater use of Southern raw materials and man-power.

In 1914, this company acquired the industrial explosives plant at Joplin, Missouri, from the Independent Powder Company. This first investment in Southern industry has been followed by others until Hercules now has a total of ten plants in the Southern states. The company's activities are not confined to the manufacture of industrial explosives, but include the production of naval stores, purified cotton linters, alum, rosin size, and many other products for use in the textile, paper, paint, varnish, lacquer, plastics, and additional industries.

Additional Plants Acquired

The second Hercules plant for the production of industrial explosives used in mining, quarrying, construction, and agriculture was completed at Bessemer, Alabama, in 1925.

In 1920, Hercules Powder Company decided to enter the naval stores business and commenced the construction of a distillation plant at Hattiesburg, Mississippi. The raw material for this plant was stumps obtained from the cut-over lands throughout the Southern long-leaf pine areas. These stumps, previously worthless and a hazard and hardship to

farmers, thereby became a profitable source of revenue. Soon after, the company also acquired the property, patents, and rights of the Yaryan Rosin and Turpentine Company, including the plant at Brunswick, Georgia.

The operation of the Brunswick and Hattiesburg plants it is claimed makes Hercules the world's largest producer of naval stores. A vast amount of money for research has been spent, resulting in the development of many products from the oleoresin obtained from the pine wood. These naval stores products are used by a large number of industries throughout the world in a variety of finished materials ranging from paint and varnish to the construction of asphalt roads.

Further Economic Development

Hercules Powder Company's plant at Hopewell, Virginia, where cotton linters are purified and processed for use in the

production of rayon, plastics, paper, and nitrocellulose, supplies these industries with a necessary material in the production of which a use has been found for the short cotton fibers that formerly were considered waste. The chemical cotton of the Virginia Cellulose Department is supplied in both bulk and sheet form for domestic and foreign consumption.

Acquisition of Paper Makers Chemical Corporation in 1931 added five Southern plants to those already owned and operated by Hercules. These, now part of Paper Makers Chemical Division of Hercules Powder Company, are at Atlanta, Georgia; Savannah, Georgia; Marrero, Louisiana; Jacksonville, Florida; and Pensacola, Florida. At Atlanta, the principal product is alum; at Marrero, alum and rosin size; at Savannah, rosin and dry rosin size; while Jacksonville and Pensacola are mainly producers of rosin and paste rosin size.

The ten Southern plants and five sales offices, which latter are located at Birmingham, Alabama; Joplin, Missouri; Huntington, West Virginia; St. Louis, Missouri; and at Charlotte, North Carolina maintain an average force of 2,350 employees. Most of these are employed at the plants in production work using Southern agricultural raw materials valued in millions of dollars annually. The average annual value of Hercules' products finished in the South is over \$20,000,000.



Naval Stores Products Plant of Hercules Powder Co., Brunswick, Ga.

Mayari R

A Corrosion Resistant, High Strength Steel

BY

R. S. A. Dougherty

Manager

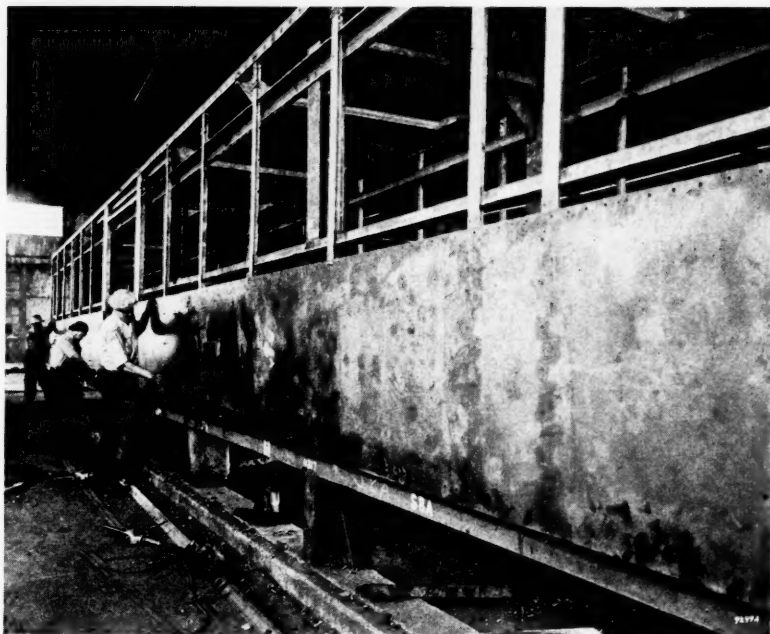
Development and Research Department
Bethlehem Steel Company

LOW alloy steels, for use in the construction of transportation equipment, to reduce weight and increase payload, differ from the more familiar types of alloy steels, in that they can be employed to advantage in the as-rolled condition. Bethlehem Steel Company's Mayari R steel*, a typical low alloy steel, can be used without heat treatment (except for the customary annealing of sheets) because its composition has been so selected that thin sections and welds, or the steel adjacent to the welds, will not harden appreciably upon cooling.

Although the strength of a low alloy steel is considerably higher than that of ordinary structure steel, it must not be excessive, as the fabrication becomes too difficult when the steel is too hard and strong.

High resistance to atmospheric corrosion is also essential in most applications in order that full advantage may be gained from the higher strength of a low alloy steel. Without the extra corrosion resistance and for equal exposure, a low alloy steel would suffer the same loss in section as a plain steel; the actual loss in

* Pronounced My-ree; R denotes rust resistance.



strength would therefore be far greater for the higher-tensile steel.

The composition of Mayari R was selected to give a steel of the following properties:

1. A strength appreciably in excess of the ordinary structural steel.
2. Good hot and cold working properties.

Putting Side Panels of Mayari R Steel on Key-System Car for the San Francisco-Oakland Bridge

3. Good welding characteristics.
4. Low tendency to harden upon rapid cooling.
5. Great resistance to atmospheric corrosion.

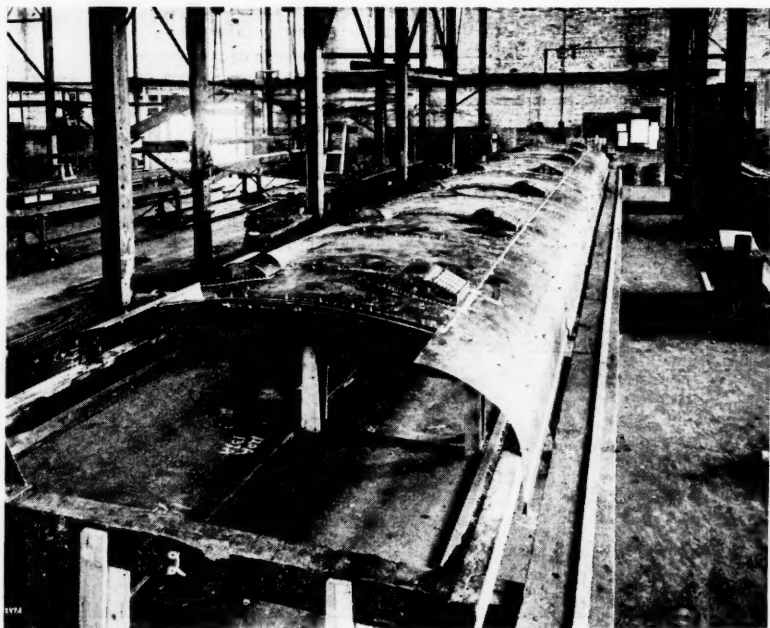
To attain such a combination of properties it was necessary to select a low carbon content, and to impart the strength by elements other than carbon. Mayari R contains approximately 0.10 per cent of this element, and the desired strength and corrosion resistance have been obtained by addition of nickel, chromium, manganese, silicon, copper, and phosphorus.

An interesting property of Mayari R steel is the high endurance limit. Test specimens taken from rivet bars gave an endurance limit of 49,200 lbs. per sq. in.

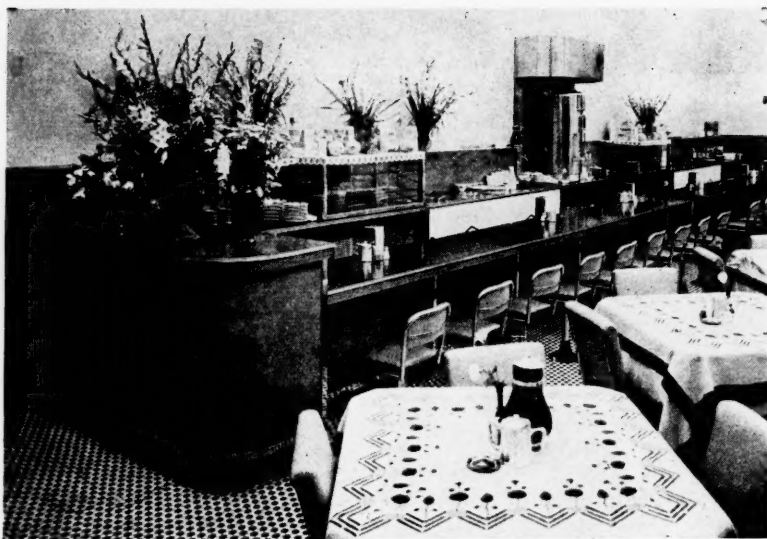
Although Mayari R steel cannot be formed and drawn as drastically as a dead soft steel, it does not otherwise offer any serious difficulties in fabrication. It can be worked hot or cold, and welds satisfactorily without air hardening.

Among the most important considerations in connection with a high tensile steel is its resistance to corrosion. Exposure tests of several years duration in

(Continued on page 72)



Construction of Light-Weight Passenger Cars Using Mayari R Steel



Cafe at Jackson, Miss., Using Stainless Steel Equipment

Yesterday, Today and Tomorrow in Stainless Steel

MENTION stainless steel to any person, executive or worker, architect or draftsman, superintendent or mechanic—and he is likely to exclaim:

"Boy, there's a metal that really is going to town!"

That popular opinion is backed up by figures. Although it was introduced to this country in 1915, by 1925 there were only two or three companies producing the product. But today, more than a score of producers are offering stainless steel, in about 60 standard analyses.

In 1929, total output was 20,000 tons of finished stainless steel but in 1936, that figure had increased to 50,000 tons, and figures for 1937 will show another increase.

Stainless steel's applications have spread high, wide and handsome. For instance, in 1933, this gleaming metal was used on only 33½% of new store fronts. But last year, over 55% of new store fronts utilized stainless steel either as the principal structural material, or in combination with some other type of material such as porcelain enameling iron. They have also employed it extensively for trim, signs and other purposes. Output of stainless steel utensils in 1930 by a leading manufacturer was 500 pieces per month. Today, the figure is 1,500 pieces per day.

The textile industry is a typical example of the ability of stainless steel to gain quick acceptance on a basis of

sheer performance. In 1930, there was a negligible amount in textile plants in the country. By 1936, more than a \$1,000,000 worth of the metal had been installed because it had proved that it could conquer the problems of color change, corrosion, and cleaning, bane of the dye houses since the beginning of the industry.

The automotive industry is an enthusiastic convert to stainless steel. Today, every important manufacturer of automobiles is using stainless steel to heighten the eye appeal of his car. Applications have extended to hood louvers, radiator grilles, running-board moulding, bumper fixtures, wheel trim, hardware, pump shafts, tank caps, tire cover moulding and windshield wiper blades. Advance reports indicate that 1938 models will contain more stainless steel than any previous line of cars.

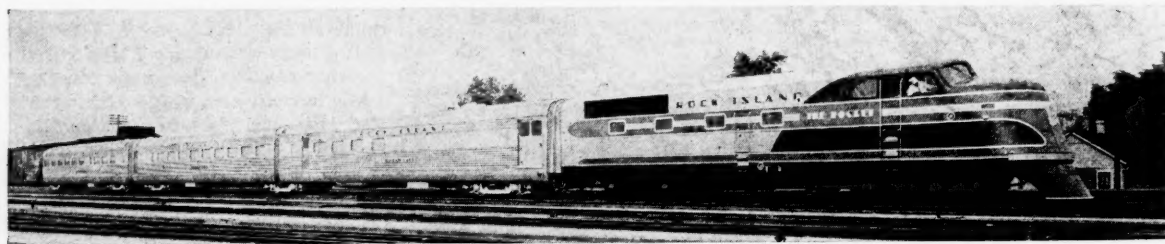
It's much the same story in other industries. Stainless steel has won a distinctive place in dairies, in restaurants, in distilleries, in hospitals, in petroleum refineries, in chemical plants, in beverage bars, in meat packing plants, in transportation, in paper and pulp production, in fact in almost every industry of today.

Common applications today range from rings and wrist watches to skyscrapers and streamlined trains. Stainless steel kitchen utensils may now be seen in thousands of homes.

Well past the experimental stage is stainless steel for structural applications. One company alone has fabricated six million pounds of stainless steel into engineered structures, mainly transportation equipment. In contrast to these large developments is the use of the metal in Louisiana and other southern states for house screens and even for pen points.

Republic Steel Corporation has termed its Enduro Stainless Steel—"The Magic Metal of Ten Thousand Uses." This may be changed some day to "The Magic Metal of All Industry."

One of the Stainless Steel Trains Built for the Rock Island Lines





Left—Shovel stripping overburden in Oronogo Circle, Oronogo Mutual Mining Co. Right—Looking north across Oronogo bottoms

THE ZINC INDUSTRY GETS BUSY

BY

Ernest V. Gent

*Secretary
American Zinc Institute*

CONSUMING markets are making heavy calls upon the zinc industry these days to furnish the metal required in the various forms and for the multiplicity of uses which are constantly being expanded. The farmer, more prosperous than in years, is building new barns and repairing old buildings and this, coupled with his demand for machinery and other farm equipment, creates a lusty cry for galvanized sheets, each carrying its protective coating of zinc.

It is music to the ear of the zinc industry, for the farmer, plus all the other users of galvanized products, consumes over 40% of the all the slab zinc produced in the United States. Of course there is nothing new about this particular use of zinc. In fact, it was in 1837, one hundred years ago, that an Englishman named Crawford invented hot dip galvanizing. Last year zinc consumed in galvanizing totalled 242,000 tons, a 24% increase over

the previous year. Galvanizing operations in that year averaged 62% of capacity. This year, to date, galvanizing operations averaged over 70%, compared with 58% for the same period in 1935.

Brass making absorbed 168,000 tons of zinc in 1936, an increase of 35% over 1935. Everything points to increased activity in the construction and automotive fields this year and that means more brass, and consequently more zinc.

Die-castings were responsible for 72,000 tons of zinc last year, as against 55,500 tons the previous twelve-months period. The 1937 consumption represents over four times the tonnage used four years ago, and new applications are still developing. For instance, the zinc alloy die-cast valve is an essential part of an attachment for permanent installation under the hood of your car, which makes the job of draining the crankcase a clean, easy operation, eliminating the fuss, as well as the dirt and the overalls, which generally go with this chore.

Rolled zinc, which absorbs 50,000 to 60,000 tons a year, together with the above-mentioned, represent the main uses of slab zinc, but some of the novel and

newer ways in which zinc and its products are utilized are, perhaps, interesting enough to mention.

The building of the Golden Gate Bridge, for example, called for large quantities of zinc for the 80,000 miles of galvanized (zinc coated) wire used in the Bridge cables.

Recent press releases featured the recommendation by Dr. Thomas M. Rivers of the Rockefeller Institute Hospital that a nose-spray solution, which includes zinc sulphate, be used as a protection against infantile paralysis.

A lot of attention has been attracted by the reports of a new zinc foil with a bright finish which is expected to prove useful in the wrapping and insulating fields.

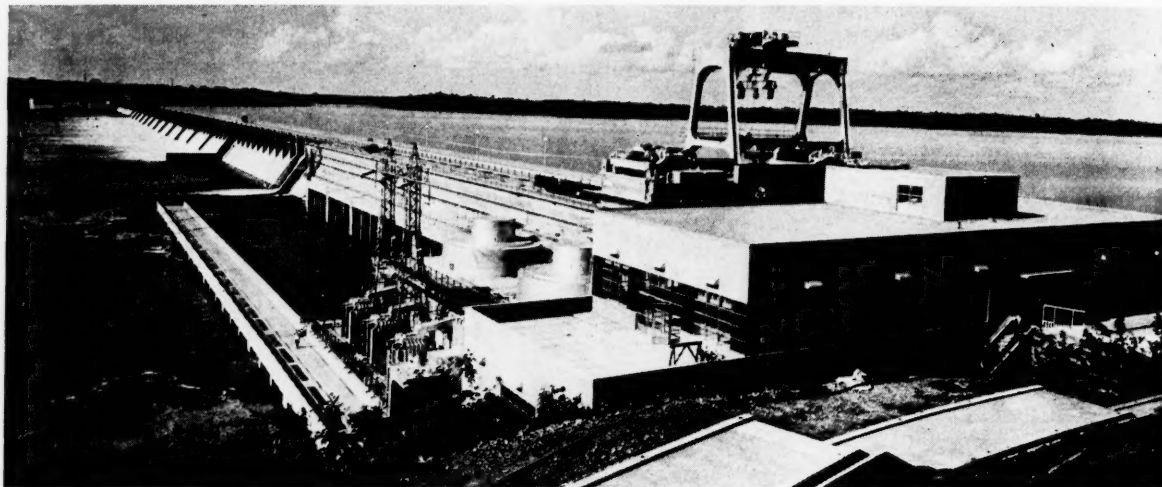
And then there is the Ohio man who has graduated from the conventional trailer and packs his collapsible house on the back of his car. According to the *Joplin Globe* it can be expanded into a one room house with 25 feet of floor space containing a standard-sized bed, a kerosene stove, etc. The "house" is made of galvanized sheets and lumber.

(Continued on page 74)

Lower—Illinois Zinc Company's smelter at Dumas, Texas



The Joe Wheeler Dam



THE Tennessee Valley Authority's second great project was brought to fruition last month when the Joe Wheeler dam was dedicated in Alabama, thus furthering in the central South a second "Ruhr district" development. The ceremony was carried out amidst a group of distinguished engineers, Wheeler descendants and Alabamians when President Roosevelt gave the signal by pressing a button in his Washington office.

The huge bulwark of concrete and steel originally estimated to cost \$33,800,000 but requiring expenditures of \$37,000,000, backs the waters of the Tennessee River 74 miles upstream to Guntersville where another \$29,000,000 project is under way. At normal level this great lake covers an

area estimated at more than 64,000 acres. The project is built as a TVA water control project. Its initial installation of two 45,000-horsepower outdoor-type generating units is located at one end; the navigation lock at the other.

A 20-foot roadway along the dam's crest, stretches for 6,500 feet from shore to shore. Maximum height of the dam from foundation to pier tops is 72 feet. The project is 15½ miles above Wilson dam which was started as a wartime measure in 1918 but not completed until seven years after hostilities ceased. Norris dam, the other project finished since the TVA was created, is located on the Clinch River, nearly 80 miles from its junction with the Tennessee River.

Air Filters in Industry

THE diversity of uses for air filters in industry is very wide. Their application to air conditioning systems has recently, of course, been spotlighted. But even before the word "air-conditioning" was coined, air filters were being used in general ventilating systems to eliminate costly as well as unpleasant dust and dirt.

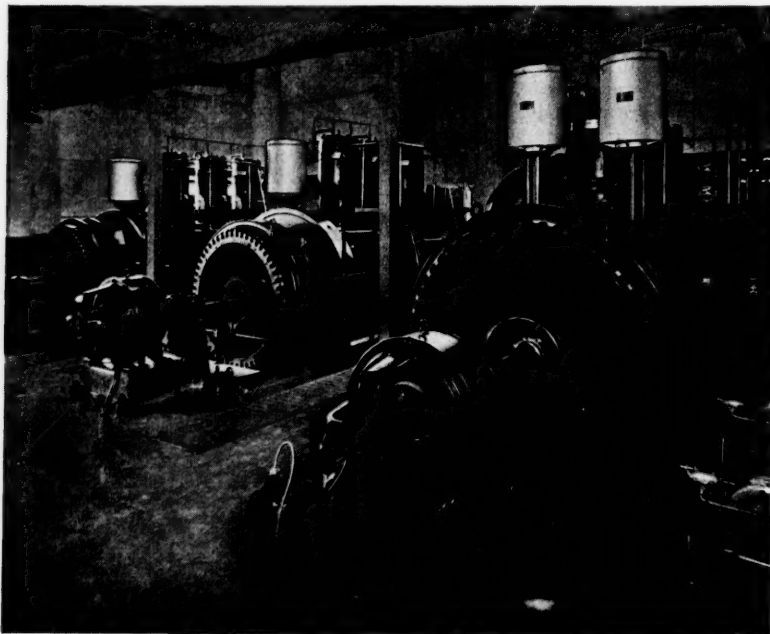
Air filters have also been used for some time on the intake of internal combustion engines and compressors, and to protect large electric motors and generators from lint and dust. As engineering knowledge increases, more and more air filters are put in service. Where formerly dust counts were thought to be so low as to cause no possible danger, engineers now specify air filters as absolute necessities.

Pipe lines carrying air and other gases are well served by filters in many instances. Compressed air, used to operate drills, jackhammers, and hoists should be dry and clean for best results; certain chemical and other processes are more successfully carried out with perfectly clean, dry air—only available through the use of efficient air filters.

In the general field of air conditioning, air filters save money in two ways. First, they protect the health of workers. Second, air filters in air conditioning or ventilating systems protect goods and processes. Even in the average U. S. city, about 45 tons of dust, sand and soot settle over a city block in twelve months. Wherever processes such as painting, brewing, paper-making, chemical manufacturing, printing, spinning, weaving, and dozens of others, are being carried on, this foreign matter can cause damage that may cost the manufacturer more in a month than complete protection with air filters would cost in a year.

Some are actually bacteria-proof, and at the same time allow free passage of air.

Steel mills in particular have use for the so-called automatic impingement type filter. This type is generally used to filter air to large electric motors and generators, but may serve a general ventilation purpose. Automatic impingement



type air filters are chiefly used wherever large volumes of extremely dirty air must be filtered at low cost.

Filters for internal combustion engines and compressors quickly prove their value. Even the least expensive automobile engines sold today are equipped with air filters, showing that the engineers of the great motor manufacturers are satisfied that clean air is essential to economical operation.

A simple test will show how much sharp, abrasive dust is present in even the cleanest engine room. From this engine room test, it can be imagined how much dust may enter engines used in exposed, outdoor locations. For the test, take two pieces of glass and coat them with light machine oil. Let them stand a week or more in the engine room. Then put the two pieces of glass together and rotate them against each other. You will be amazed at the sharp, cutting particles that have adhered to the oil. These same particles in engine cylinders wear out rings and lines, cause carbon to form, valves to stick and all reciprocating parts to wear out three to five times sooner than when protected by adequate intake filters.

Wherever air powered tools are used, it is good economy to place an intake filter on the compressor and one or more pipe line filters on the air line before point of use. Then clean, dry air is assured, which noticeably affects the efficiency and the economy of operation of these tools. Particularly in cool weather are filters necessary. Then water is likely to condense in the lines. Unless this water is completely removed by efficient filters, it will wash the lubricating oil from reciprocating parts, causing breakdowns and excessive wear.

Clean air is essential to many manufacturing operations, including paint, ice and chemical making. Here filters obviously pay their way. Sometimes it is a question of filtering all entering air—sometimes only air in compressed air lines and to compressors. Air filters are saving industry millions of dollars annually. It is worth while to check over all industrial operations carefully for possible uses of filters. The filter manufacturers say—and they are right—"Clean air to men and motors saves you money."

Charlotte's

New Air Port

EXPERTS of the Bureau of Air Commerce have pronounced the new \$500,000 airport at Charlotte, N. C., one of the best in the South. Formal dedication is awaited early this fall.

The use of the new port's three runways—two 3,000 feet long and one 2,500 feet in length—will be governed by the direction of the three prevailing winds in the area. A movement to lengthen these by 1,500 feet is already afoot to insure adequate landing facilities for the larger and heavier aircraft now being developed.

One hangar, 100 feet square and designed following requirements of Federal authorities, has been built of asbestos protected metal at a cost of \$25,000. The native stone administration building cost \$20,000. Area of the taxi strip is 18,000 square yards. The center of the runway is surfaced for 150 feet for landing. Other stretches of the runway banks are sodded.

The latest bank floodlight system, of Westinghouse manufacture, has been installed, with all switches for the entire layout operated from the administration building by remote control.

Forty-one boundary lights, 18 green range lights, eight single and eight double obstruction lights, two apron floodlights, two floodlight banks, each with three 3,000-watt units form part of the

system, which is completed by a 36-inch double rotating beacon, an airport code beacon, a 75-foot beacon tower, a ceiling projector and alidade, a lighted wind cone and a lighted wind tee.

The City of Charlotte purchased the site with the proceeds of a special \$50,000 bond issue. Area of the tract is approximately 460 acres. The field was designed and plans were specified by the Department of Commerce, with the detailed plans being worked out by the municipal engineering department under supervision of Lloyd Ross, engineer.

Figures of its construction are:

Common excavation—350,000 cubic yards.

Clearing and grubbing—154 acres.

Finished grading—250,000 square yards.

Top soil—360,000 cubic yards.

Six-inch pipe in place—16,200 lineal feet.

Eight-inch pipe in place—4,200 lineal feet.

Ten-inch pipe in place—25 lineal feet.

Crushed stone (in drain ditches)—5,100 tons.

Concrete spillways—125 cubic yards.

Class "A" foundations—35 cubic yards.

Six-inch concrete floor—535 square yards.

Structural steel—200,000 pounds.



September Contract Awards

Total \$59,532,000

First Nine Month's Valuation

Amounts to \$638,000,000

A DECIDED increase in private building contracts is largely responsible for maintaining the level of Southern construction and for raising the total of commitments made so far this year to \$638,000,000, is revealed by a study of the items published during September in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN.

Private building contracts have reached \$143,392,000. This is more than thirty-five percent over the total for the same period of last year. Industrial awards amount to \$186,774,000 and as compared with the first nine months of 1936 show an increase of about five percent.

Store, residential, and hotel and apartment contracts have added substantially to the total for this year with increases ranging from almost seventy percent for store construction and sixty-four and twenty-six percent, respectively, for the other two types of buildings. Bank and office and association and fraternal work has more than doubled. Church projects also have risen.

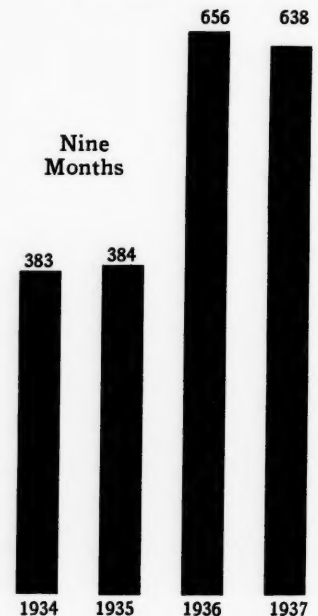
Highway and bridge contracts and the erection of governmental and school buildings are lower than last year. During the first three-quarters of 1936, \$182,402,000 was the value of road contracts, while this year but seventy-eight percent of that amount has been spent. The decline in public building is about fourteen percent.

The general trend of expansion in the private building field held its pace in September when contracts for such work exceeded its total for the preceding month and surpassed the figure for September of last year, although a sharp drop in the current September's industrial and public works awards lowered the month's total for all construction to \$59,532,000.

Private building contracts mounted during the month to \$17,761,000, or a figure greater than that for all months so far this year except that of April, when the peak of residential construction occurred, and of May, when a substantial volume of such work was undertaken. The \$10,285,000 for dwelling contracts let in September is topped only by the April record.

Church awards of \$761,000 in September were higher than those for August and for any other September during the last six years. Hotel and apartment con-

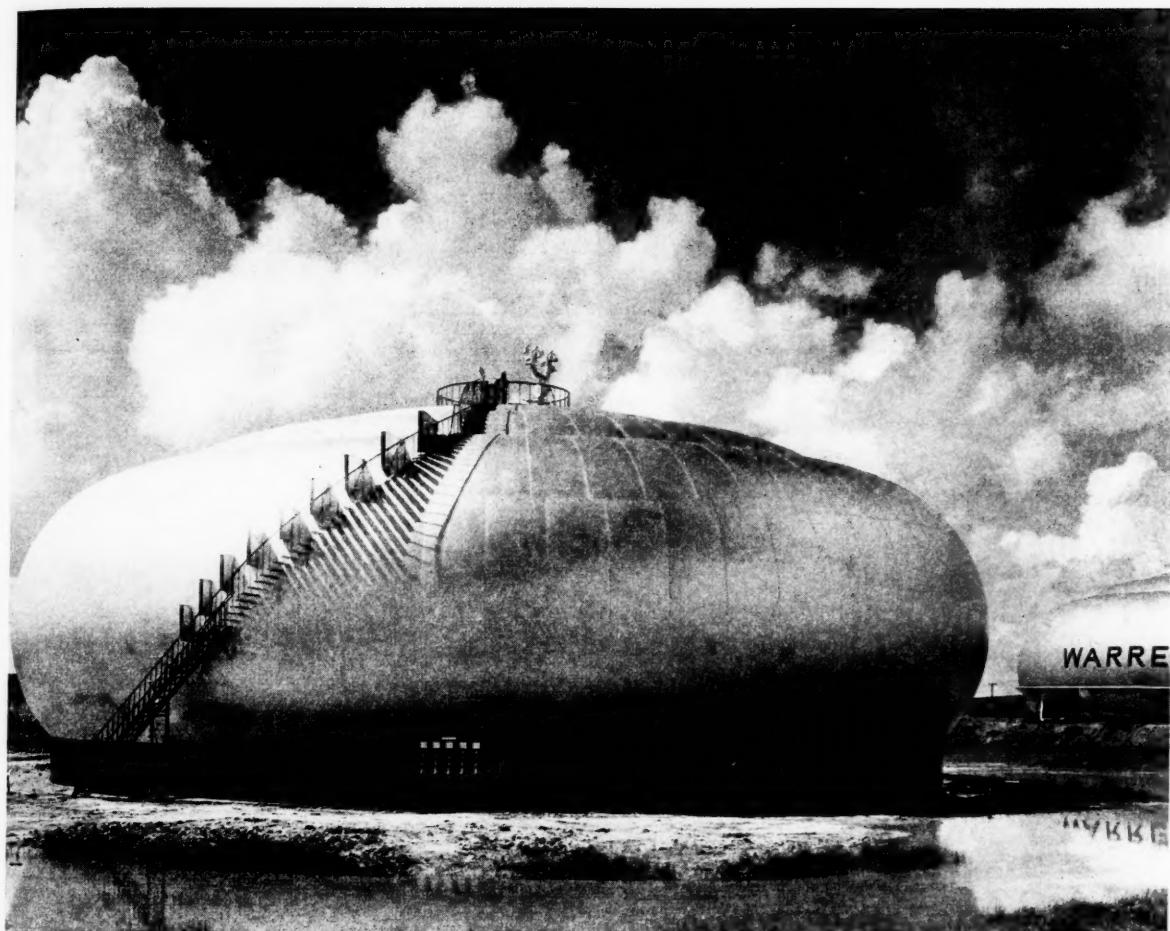
Southern Contracts (Millions of Dollars)



struction, while below the August total, reached well over the monthly average for this year. Store and bank and office

Southern Construction Activity

	Contracts Awarded September, 1937	September, 1936	Contracts to be Awarded September, 1937	September, 1936	Contracts Awarded Nine Months 1937
GENERAL BUILDING					
Apartment and Hotels	\$4,221,000	\$4,005,000	\$1,901,000	\$2,425,000	\$30,915,000
Association and Fraternal	95,000	55,000	75,000	125,000	2,147,000
Bank and Office	520,000	405,000	438,000	725,000	9,545,000
Churches	761,000	485,000	973,000	530,000	3,902,000
Dwellings	10,285,000	7,200,000	3,105,000	6,629,000	70,067,000
Stores	1,879,000	3,725,000	4,201,000	4,330,000	26,816,000
	\$17,761,000	\$15,875,000	\$10,693,000	\$14,764,000	\$143,392,000
PUBLIC BUILDINGS					
City, County, Government and State..	\$7,944,000	\$11,945,000	\$40,358,000	\$28,457,000	\$82,321,000
Schools	1,921,000	1,845,000	20,529,000	13,532,000	34,607,000
	\$9,865,000	\$13,790,000	\$60,887,000	\$41,989,000	\$116,928,000
ROADS, STREETS and PAVING					
	\$14,899,000	\$18,394,000	\$28,360,000	\$35,652,000	\$142,690,000
INDUSTRIAL and ENGINEERING					
Drainage	\$2,846,000	\$6,540,000	\$12,013,000	\$12,290,000	\$17,921,000
Filling Stations and Garages, etc....	625,000	530,000	444,000	730,000	5,279,000
Industrial Plants	12,501,000	18,821,000	46,746,000	49,577,000	186,774,000
Sewers, Waterworks	1,035,000	5,308,000	8,312,000	16,924,000	25,016,000
	\$17,007,000	\$31,199,000	\$67,515,000	\$79,521,000	\$234,990,000
Total	\$59,532,000	\$79,258,000	\$167,455,000	\$171,926,000	\$638,000,000



SPHERICAL AND SPHEROIDAL TANKS to store volatile liquids under pressure

Oil fields and refineries in the South are dotted with spherical and spheroidal tanks. Some of them are small—25 feet in diameter—while others like the two Hortonspheroids illustrated above are 141½ feet in diameter and have a capacity of 100,000 barrels each.

These structures have an intriguing appearance. The actual purpose of building them in these particular shapes, however, is entirely utilitarian.

The Hortonspheroid is used to store natural gasolines and other volatile oil products under one to twenty five lbs. per sq. in. pressure to prevent excessive evaporation losses. The spheroidal shape

is the most economical to use in designing a container to withstand this combination of liquid load and gas pressure. They are built in standard sizes from 2,500 to 100,000 barrels.

When higher pressures are required, the Horton-sphere is used. It is built in sizes from 1,500 to 12,500 barrels for the storage of liquids and up to 60 feet in diameter for the storage of gas.

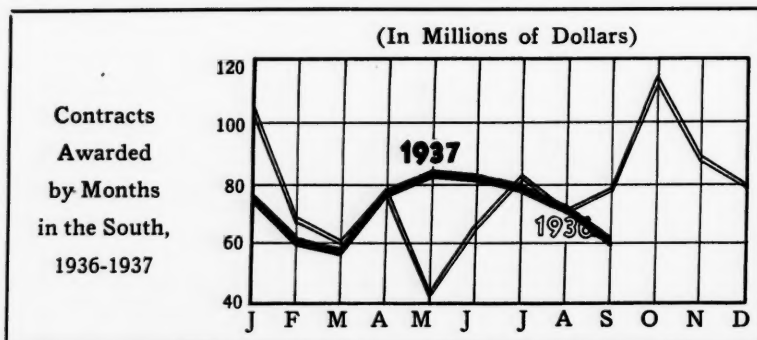
Hortonspheres and Hortonspheroids can be adapted to the storage of other products. We also design and erect standard flat-bottom tanks as well as special tanks of all kinds to meet your requirements. Write our nearest office for information or quotations.

CHICAGO BRIDGE & IRON COMPANY

Birmingham	1530 North Fiftieth Street	New York	3313-165 Broadway Bldg.	Philadelphia	1619-1700 Walnut Street Bldg.
Dallas	1408 Liberty Bank Bldg.	Cleveland	2216 Rockefeller Bldg.	Detroit	1510 Lafayette Bldg.
Houston	2919 Main Street	Chicago	2106 Old Colony Bldg.	Boston	1510 Consolidated Gas Bldg.
Tulsa	1611 Hunt Bldg.	San Francisco	1040 Rialto Bldg.	Havana	Edificio Abreu 402

B-335

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.



awards slumped. Association and fraternal work was also lower. Road work fell below the figure for August and also from the level for September of last year.

Industrial awards for September were valued at \$12,501,000. The preceding month had a valuation in this field of almost twice that figure. However, the backlog of contracts to be awarded at the end of August was \$33,556,000, while toward the end of September the industrial work proposed during the month had an estimated valuation of \$46,746,000.

Representative Projects in South Last Month

Proposed Construction

Alabama—Electro Metallurgical Co., New York	
Carbon and Graphite plant	\$5,000,000
D. C., Washington—District Commissioners	
School; (Dennison Vocational); Nathan C. Wyeth, Archt.	320,000
Fla., Chattahoochee—Florida State Hospital, Tallahassee	
Nurses home; H. J. Klutho, Jacksonville, Archt.	263,000
Fla., Miami—Biscayne Improvement Corporation	
Improvements	2,500,000
Ga., Atlanta—City	
Filter plant; Wiedeman and Singleton, Inc., Engrs.	250,000
Ga., Atlanta—F. W. Woolworth Co., New York	
Store improvements	150,000
Ga., Columbus—Columbus Country Club	
Club house and swimming pool	125,000
Ga., St. Simons Island—King & Prince Hotel	
Hotel and club	385,000
La., Abbeville—City	
Sewerage system; J. B. McCrary Engineering Corp., Atlanta, Ga., Engrs.	200,000
La., Baton Rouge—Louisiana Steam Generating Corp.	
Electric-steam plant additions	3,000,000
La., Cotton Valley—Octane Oil & Refining Co., Longview, Tex.	
Refinery	1,000,000
La., Port Sulphur—Freeport Sulphur Co., New York	
Mine improvements	300,000
Md., Baltimore—Women of Maryland Hospital	
Building; Crisp & Edmonds, Archts.	250,000
Mo., St. Louis—Masonic Home of Missouri	
Addition; William B. Ittner, Inc., Archt.	360,000
N. C., Charlotte—Presbyterian Hospital	
Addition	400,000
Okla., Oklahoma City—State Board of Affairs	
State office building; John Duncan Forsyth, Tulsa, Archt.	1,000,000
Tenn., Memphis—Central Court Apartment Co.	
Apartment; W. C. Lester, Archt.	650,000
Tex., Amarillo—Robert R. Young and Hagy, Harrington and Marsh	
Gasoline extraction plant, carbon plant, etc.	2,000,000
Tex., Cleburne—First Baptist Congregation	
Church; Wiley G. Clarkson & Co., Fort Worth, Archt.	125,000
Tex., Corpus Christi—General American Tank Storage and Terminal Co., Refinery	1,000,000

Tex., Dallas—Jesse Jones, Houston	
Store	1,000,000
Tex., Grand Falls—Red Bluff Power Control District	
Power plant	200,000
W. Va., Beckley—State Board of Control	
Hospital (Pinecrest Sanitarium); Garry & Sheffey, Bluefield, Archts.	400,000
W. Va., Logan—F. Middleburg	
Theatre	150,000

Contracts Awarded

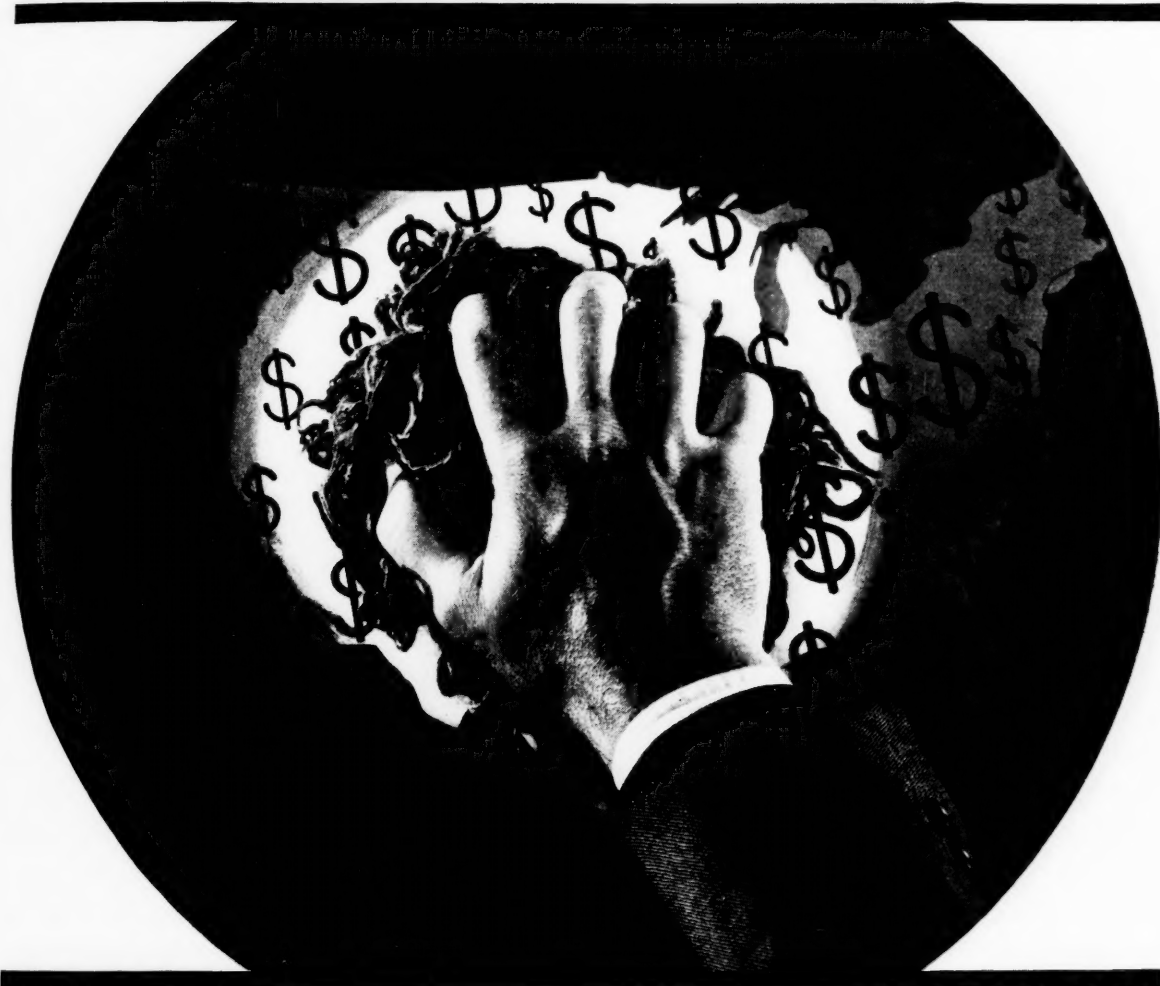
Fla., Miami Beach—Irving J. Reuter	
Dwelling; C. B. Schoeppl, Contr.	100,000
La., Springhill—Webster Development Co., Shreveport	
Housing development; McGregor & Pickett, Little Rock, Ark., Contrs.	1,500,000
Mo., Kirkwood—Treasury Department	
Marine Hospital; Foster & Creighton, Contr.	1,103,000
Mo., St. Louis—Board of Public Service	
Psychopathic Hospital; I. E. Millstone Construction Co., Contr.	617,000
S. C., Charleston—Clyde-Mallory Line	
Pier; G. W. Hessler, Inc., Jacksonville, Fla., Contr.	400,000
Tex., Corpus Christi—Mrs. Clara Driscoll Sevier	
Hotel; Ed W. Oeffinger, San Antonio, (low bidder)	1,500,000
Tex., Galveston—State Highway Department, Austin	
Bascule (Galveston Causeway); Austin Bridge Co., Dallas, (low bidder)	246,000
Tex., Houston—Borden Construction Co.,	
Residences	128,000
Tex., Houston—Champion Paper & Fiber Co.,	
Recovery Plant; Babcock and Wilcox Co., New York, Contr.	800,000
Tex., Houston—Shipside Contracting Co.	
Barge terminal; Southwestern Construction Co., (low bidder)	136,000
Va., Danville—City	
Big Bend Dam; Ligon and Ligon, Baltimore; and Sammons-Robertson Co., Huntington, W. Va., Contrs.	571,000
Va., Pulaski—Jefferson Mills, Inc.	
Silk throwing mill; C. M. Guest & Sons, Anderson, S. C., Contr.	300,000
Va., Roanoke—Hotel Roanoke	
Addition; J. A. Jones Construction Co., Charlotte, N. C., Contr.	1,055,000

TWO GREAT STEEL PLANTS GROW

Both United States Steel and Bethlehem Steel are pouring millions of dollars into the South for expanding tin plate production in that section. At Birmingham, the Tennessee Coal, Iron and Railroad Co., a United States Steel subsidiary, is building a \$29,000,000 mill. The annealing department is shown below at the right as the equipment is being installed. A large part of a \$35,000,000 Bethlehem expenditure is being made at the Sparrows Point plant near Baltimore. New skin-pass units at that point are pictured in operation at the left.



Woolen waste dealer MOPS UP MARKET by Long Distance



● A woolen waste firm sells to eastern wool-spinners through a sales manager and three salesmen. The sales manager needed more time for home office duties . . . realized he lost time in waiting for busy customers and calling on those who were absent or not in the market.

He tried telephoning from strategically located points . . . found it permitted faster, more frequent coverage . . . avoided useless visits . . . secured personal appointments where necessary. On his first two-week trip, he saved two full days at a telephone cost of \$12. On another trip, five calls to different cities saved 1450 miles of traveling.

Similarly, the sales department uses Long

Distance to follow up after salesmen's trips. Here it minimizes expensive "back-tracking"—assures quick, timely contact with customers—and reduces loss of business to competitors. Two typical instances . . . a telephone call costing \$1.75 brought an order for \$1100 . . . a series of calls totaling \$6.75 produced a \$7000 order.

Concerns of all kinds find they can "mop up" markets more thoroughly and more economically by the systematic use of Long Distance service. Why not discuss it with a Bell System representative? Just call the local telephone business office. No obligation.



Iron, Steel and Metal Market

WHILE steel production was at 75 per cent of capacity in the last week of September as compared to slightly more than 84 per cent a month ago, the decline in output was not as great as had been anticipated. Customers are said to be fearful of what is to happen to business. Their inquiries exhibit no eagerness and have not developed into orders. The demand from farm implement manufacturers has been better sustained.

It is understood that railroad orders for rails have been temporarily held up on account of the demands of railroad unions for higher wages. As mentioned elsewhere in the MANUFACTURERS RECORD, it is likely that a compromise settlement will be reached which, while costing the railroads more money, may possibly be offset by an increase in freight rates requested of the Interstate Commerce Commission. Among orders for rails were 5,000 tons for the New York Central, and 13,000 tons for the Denver & Rio Grande. There has been a reduction in the working forces at railroad shops, and hence less steel is being bought than a few weeks ago. As new models for automobiles come into the market and gain approval of the public, it is probable that renewed buying of steel on a higher scale than at present will be felt. Strips, sheets and bars have lost no ground, but have shown gains recently in the Pitts-

burgh area.

Structural steel reached in August a top point for the year so far of 158,228 tons, which was a gain of more than 10 per cent over August, 1936. Bookings in August were 117,612 tons as compared with 110,687 tons for the like month of 1936.

Scrap Metal

Scrap prices registered a further decline at Pittsburgh and other centers. Financial and trade commentators attribute conditions now prevailing, which reflect lack of confidence, to a recent break in the share market, as well as doubt about government policies. While the demand from England for scrap has been heavy, it is understood as this is written that more than a dozen ships loading with cargoes of this material for China and Japan are likely to be held up. One of the reasons being given is that insurance will not be available as the risk in eastern waters is too great.

Government reports show scrap exports from 1923 to 1932 averaged 240,000 long tons per year. This had increased to 800,000 tons in 1934. In 1935 exports totaled 1,600,000 tons, and for the first five months of this year shipments were 1,652,000 tons.

It has been proposed that Congress investigate the increased scrap metal exports and particularly its effect on this

country's iron and steel. Governmental departments have signified approval, and Secretary Hull offered to furnish the investigating committee with copies of the confidential report submitted by inter-departmental investigators.

Other Metals

As to other metals, the price of domestic copper was down to 12 cents, and with the reduction of one-quarter cent a pound in the price of lead, brought that to six and a fraction cents at New York.

Metal authorities referred to the reduction as due to lessened demand here and the decline in the price of exported copper. Foreign metal has reached the lowest point since last March when the international market dropped from the high level for domestic copper of 17 cents.

At Sharon, Pa., extensive improvements are being made to the rolling mill of the Carnegie-Illinois Steel Corporation. Facilities are being installed to handle 14 to 16 inch bars.

The American Steel & Wire Co. awarded contracts for construction of five additions to buildings at their Cuyahoga plant, being the first move toward a \$4,000,000 rehabilitation program. The American Bridge Co., another U. S. Steel subsidiary, will do the work.

The Republic Steel Corporation booked an order for 5,000 tons of steel pipe from the Standard Oil Co. of Ohio, and the U. S. Pipe & Foundry Co. received an order for 1900 tons of cast iron pipe from Los Angeles. This Company was also low on a bid of cast iron pipe for New York City for nearly 4500 tons.

According to "Steel Facts," published by the American Iron & Steel Institute:

Three out of four steel workers own automobiles. This car ownership exceeds the national average. Between 60 and 80 per cent of the men arrive at the plants in their own cars, or in those belonging to fellow employees.

The larger amount of leisure time made available to steel workers through the reduction of the average work week from 55 hours in 1929 to 40 hours at present, as well as the adoption of the 5-day week, and of vacations with pay, are given as factors in the increased car ownership.

The total value of the raw materials purchased by the steel industry in 1935 was listed at \$1,411,000,000 by the Census Department. The total value of iron and steel produced from these materials was \$2,305,000,000. The difference of \$894,000,000 represents the value added by manufacturing processes. Of this added value, more than 50 per cent was paid out in wages to steel workers.

PROMPT DELIVERIES FROM STOCK (Standard Sizes)



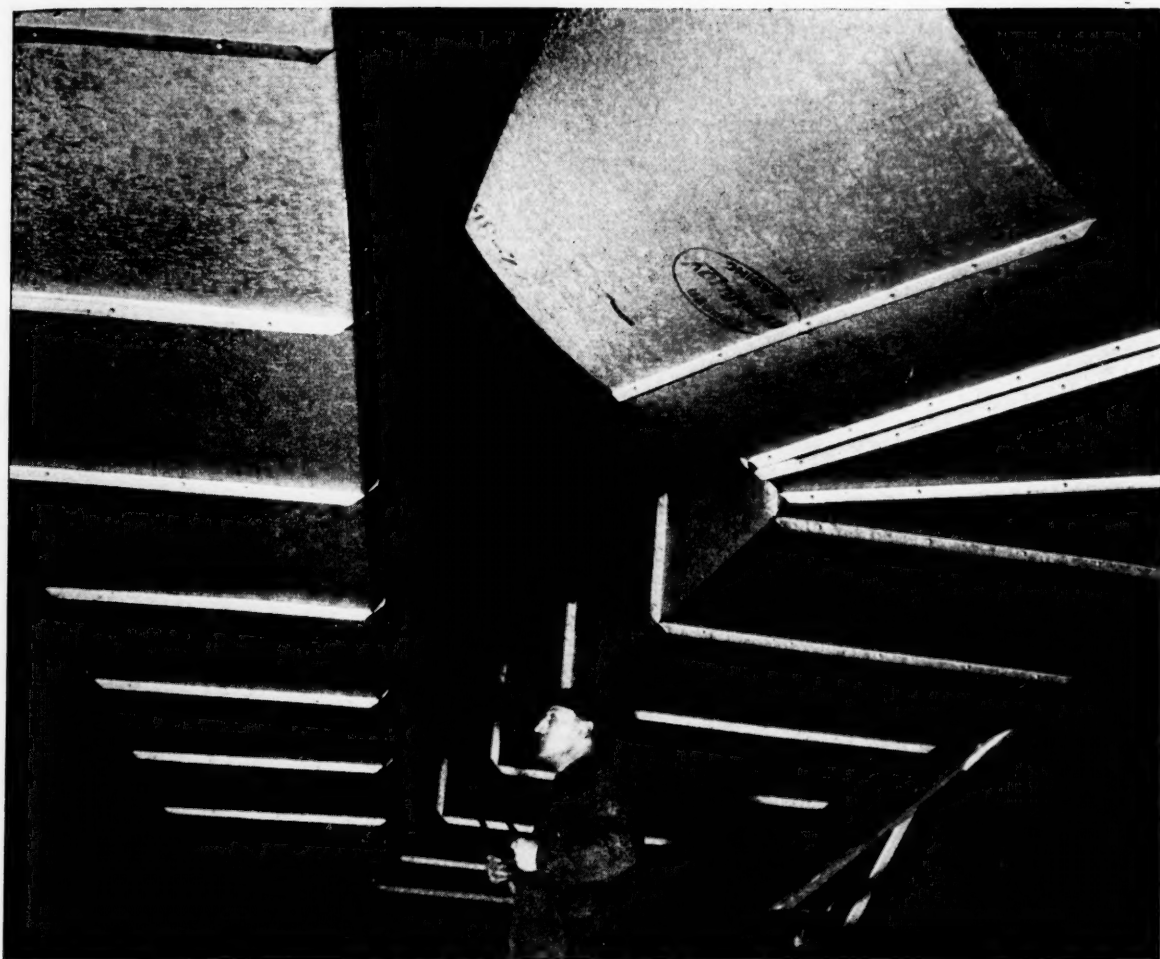
**ORIOLE
GALVANIZED
STEEL SHEETS**

Flat-Corrugated-Roofing

THE EASTERN ROLLING MILL CO.

BALTIMORE, MARYLAND

District Office, Petroleum Bldg., Houston, Tex.



SPECIFY A *double defense* AGAINST RUST

***Beth-Cu-Loy* galvanized sheets offer
it at negligible increase in cost**



BETH-CU-LOY galvanized sheets have two separate lines of defense against rust. They have a sound, uniform coating of good, clean zinc. Underneath this galvanizing, they have a base of rust-resisting copper-bearing steel.

Atmospheric-corrosion tests on copper-bearing steel—identical to the composition of Beth-Cu-Loy—indicate that it will outlast standard open-hearth steel by two to three times (four times, in one test). These same impartial tests show that copper-bearing steel has about twice the life of open-

hearth iron, and outlasts even copper-bearing iron by 20 per cent or more.

Beth-Cu-Loy is not expensive. It costs only $4\frac{1}{2}$ to 5 per cent more than ordinary steel—an increase that will be hardly noticeable in the cost of the completed job. Beth-Cu-Loy actually costs considerably less than open-hearth iron—either plain or copper-bearing.

In specifications for sheet metal—duct-work, eaves and gutters, roofing—specify Beth-Cu-Loy copper-bearing steel. It adds so much in life; it costs so little more.



BETHLEHEM STEEL COMPANY

OCTOBER NINETEEN THIRTY-SEVEN

Lumber News

of the Month

Strong Opposition to Wage and Hour Bill

The meeting at New Orleans, September 10th, under the auspices of the Southern Pine Industry Committee, was not a meeting of lumbermen only but of industrialists generally, opposed to the Black-Connery Bill.

The opposition to it voiced by speakers from various parts of the country was by no means based solely on the strangle hold its passage would inflict upon Southern industry but industry generally, and upon labor as well.

It can be described as a mass meeting of Southern and Middle Western industrialists and attended by individual manufacturers as well as representatives of associations of various kinds. Milwaukee sent B. E. Jacobs, president of the Associated Coopers Industries of America; R. L. Bradshaw, Washington, representing Machinery & Allied Products Institute was in attendance; Jackson, Mississippi, sent G. M. Lester, president of the National Cotton Ginners Association—to mention a few of those in attendance and the interests they represented.

Cleveland A. Newton, St. Louis, general counsel Mississippi Valley Association and formerly congressman from Missouri, pointed out: "Labor really is more concerned with respect to this measure than the employers. If a minimum wage is established and compels industries of the community to go out of business, the result will not benefit the workers. It will result in more unemployment than the country experienced at the bottom of the depression. Manufacturers of the Middle West have certain handicaps, as compared to the North and East. Some of the South's difficulties are identical with those of the Middle West. If the South and Middle West stand together, the rest of the country cannot beat us," Mr. Newton asserted.

"Skilled and unskilled workers know they will be unable to earn as much as they do at present because of the reduction of hours of labor. One thing to be impressed upon the people is the fact that if this bill is permitted to become a law, it will place in a government board, bureaucratic control of the conduct and affairs of all business and industry in the country."

Instruction in Forestry

The Slash Pine Forestry Association, Inc., announces a "festival" to be presented at Waycross, Ga., November 23-27. It is described in the announcement as "a week of instruction in forestry." Opportunity will be afforded to see and study the various aspects of forestry relating to tree planting, growing and utilization; feeding cattle in the forests, and the relation that game, fish and recreation bear to forestry, as well as soil conservation in the slash pine area.

Southern Pine

Fairly even balance has been maintained in orders and production of Southern Pine during September. New business booked for the month has been less than for the same month last year, but production also has fallen off relatively, and stocks on hand at the mills are about normal. Some increase in demand and production is anticipated by market observers during the next two months and possibly until the Christmas holidays.

Several local campaigns conducted by retail lumber dealers in cooperation with the Southern Pine Assn. are in progress in different communities for promotion of the use of grade-marked and quality lumber for home building and other construction purposes. Reports from dealers indicate some stepping-up of home building activity, which may develop augmented demand.

Government Turpentine Reported Sold

The *Savannah News* carried an account last month of the reported sale of one third of the government's stocks of turpentine. The Commodity Credit Corporation is said to have disposed of the entire stock of gum turpentine held by the federal government at Jacksonville, understood to be approximately 20,000 barrels.

The purchasers are reported as two Savannah distributors and a Northern industrial concern, which took 5,000 barrels, with the understanding that it was not to be sold as turpentine in competition with gum turpentine, but converted into some other commodity.

The remaining 15,000 barrels are said to be sold for shipment abroad, none of it to come on the domestic market in competition.

The transaction may involve nearly \$300,000.

Timber Taxation

At a recent meeting of the Pine Bluff, Ark., Chamber of Commerce, the directors voted to investigate a proposal of the president, A. H. Rowell, that timber removed from the state to be processed, should be subjected to taxation.

Construction of a paper mill just across the state line in Louisiana, for which Arkansas timber lands valued at approximately \$125,000 have been purchased, is believed to account for the suggestion.

Texas Lumber

The Texas Forest Service Experiment Station, states that the stand of timber in eastern Texas augurs well for the future. In 36 counties there is an estimated 17,000,000 M. feet of pine nine inches or greater in diameter, and 6,250,000 M. feet of hardwood approximating the same dimensions.

Pulping hardwoods, totaling 19,500,000 cords include bay, magnolia, maple, red and black gum, tupelo, cypress, cottonwood and willow. Among the non-pulping

hardwoods which amount to 32,750,000 cords are, red and white oaks, hickory, ash, elm, locust, dogwood and persimmon. It is the opinion of the Service that by stringent conservation and the best lumber methods, the total annual growth will be raised to two billion feet.

Exports and Imports

Exports of logs and lumber for the first seven months of 1937 indicated a decrease of 2 per cent as compared with the same period of 1936. According to the Forest Products Division of the Bureau of Foreign and Domestic Commerce, the decline is partly accounted for by the maritime strike on the West Coast which seriously curtailed shipments during the first two or three months of this year.

While sawed timber, both hardwoods and softwoods showed a general and substantial increase, it was entirely offset by the regrettable decrease of 52 per cent in log exports.

On the other hand imports rose considerably and were almost 30,000 M. board feet greater in the first half of 1937 than in 1936.

EXPORTS, JANUARY TO AUGUST

	1937	1936
	M. ft.	M. ft.
Lumber	891,434	791,879
Logs	109,420	227,936
Total	1,000,854	1,019,912

IMPORTS, JANUARY TO JULY

	1937	1936
	M. ft.	M. ft.
Softwood Lumber	325,431	375,055
Hardwood Lumber and Sawed Cabinet Woods	66,304	45,599
Logs	75,449	66,304
Total	467,184	486,958

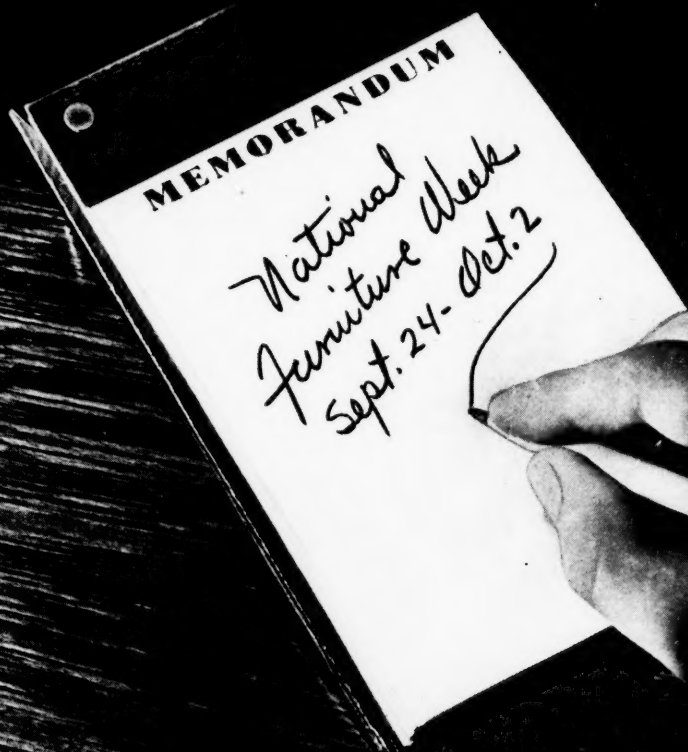
Lumber From Wild Pecan

Lumber from the wild pecan has been found to possess qualities comparable to many cabinet woods for furniture when subjected to new methods of kiln drying. Its appearance, when properly prepared, is said to be so similar to walnut that only the well informed can differentiate.

A Forestry Appointment

With the appointment of A. E. Wackerman as Industrial Forester, the Seaboard Airline Railway inaugurates a new and significant program in the interests of landowners and wood using industries.

During the past two years eleven large pulp and paper mills have located in the six states served by the Seaboard Air Lines and provisions for a twelfth has been made. When all these mills are in operation they will have an output in excess of 3,000 tons of pulp and paper, consuming more than 5,000 cords of pulpwood daily. Estimates indicate that within a decade 10,000 cords or more a day will be required for the pulp and paper mills in these six states in addition to the large demands of other industries.



Remember the date of National Furniture Week this year . . . and remember too, that the Norfolk and Western is one of the leading railways of the country in the transportation of furniture ● The railway's engineers, research experts, and the furniture manufacturers in Virginia and Carolina have cooperated over a number of years in developing a safe method of loading and stowing the great volume of furniture manufactured in Norfolk and Western territory ● On the Norfolk and Western, furniture—and all freight—is handled safely, quickly, efficiently and economically ● When there is freight to be moved, call a Norfolk and Western representative—he will help you ●

NORFOLK AND WESTERN RAILWAY
P R E C I S I O N T R A N S P O R T A T I O N

Good Roads and Motor Transport

Editorial

THE ALL IMPORTANT PROBLEM

MOTOR transport has brought tremendous problems. One that presses most for solution is the great increase in accidents resulting in loss of life or serious injury.

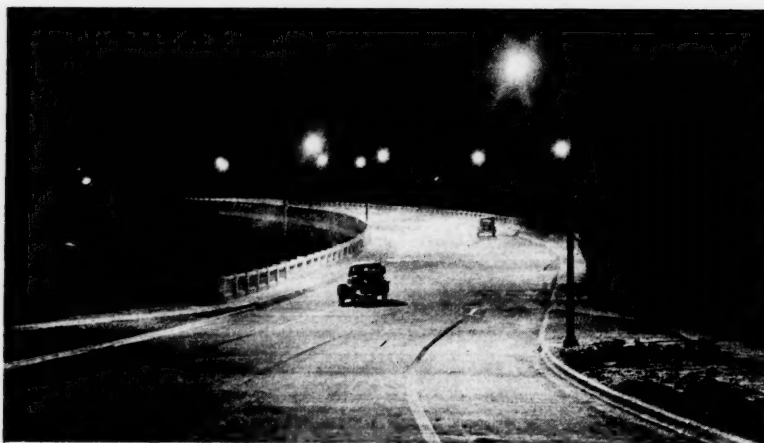
The problem is present not only in congested city areas, but on the highway trunk lines and the by-ways of the country. Engineers are working to provide the utmost in safety in highway construction. Roads are being made wider, curves are being eliminated, and are being built with banked shoulders, while obstructions that block the view are being removed.

It would seem that the problem is being studied from practically every possible angle. So far there has been no complete solution, although it is admitted that with the great increase in the number of automobiles something of a drastic character must be done unless we are to permit the slaughter to continue.

Some states, unfortunately, have yet to learn the necessity of careful examination of drivers before issuing licenses to drive. Others do not look carefully enough into the character of the applicants. Periodic examinations for fitness should be insisted upon. After all, it is the human element and not the machine mainly at fault.

The fact stands out that more and more roads must be built—wider roads, super-highways for different kinds of travel, and overhead highways in congested areas. All of which will involve expenditures beyond present calculations. They will bring with them acceleration to business expansion. As roads are built, communities reach out and develop; the tax base is extended; communication, which after all is one of the marks of our civilization, is facilitated.

Whether we are to have speed cut down, and that might be a good thing, or more stringent rules made both for pedestrians and motor users it would seem to be the part of wisdom for the country as a whole to recognize that something drastically compelling must be done to stop the toll being taken of human life.



Courtesy General Electric Co.

Modern Overpass Lit by Sodium Lights

Elimination of Grade Crossings

Since 1933 the states have been enabled to eliminate more than 2400 railroad grade crossings through the use of government funds, and providing the average cost per project does not increase, about 600 additional crossings may be removed.

The act of 1933 provided \$200,000,000 for this work and in the interim 1275 new crossings have been constructed and 241 reconstructed at a total cost of \$98,836,834. Of the \$101,163,166 remaining, \$78,405,105 will be needed for the 597 eliminations and 102 reconstructions now under way.

Petroleum Industry Vehicles Set Example

According to reports of the National Safety Council, motor vehicle accidents for the nation as a whole increased sharply in 1936, compared to 1935. Yet motor vehicles operated by the petroleum industry according to records of 78 oil companies operating 42,554 vehicles a total of 676,617,693 miles in 1936, had an accident rate of only 1.62 for each 100,000 miles of travel.

Diversion of Highway Funds

Automotive taxes levied on highway users last year set a record of \$1,066,341,000. Of this amount, the U. S. Bureau of Public Roads finds that nearly 16 per cent, or \$169,340,000, was diverted to purposes other than highways.

The Bureau states "These taxes have been justified on the grounds that they are for the building and maintenance of good roads over which vehicles must travel. Any other use of these funds detracts materially from the upkeep of the highways for which the motoring public is paying."

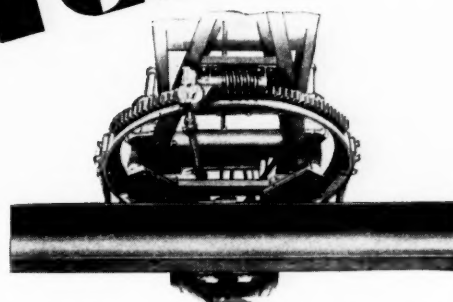
Four states, New York, New Jersey, Pennsylvania and Ohio, diverted sums in excess of \$10,000,000, and only 13 states used all the money so collected for the maintenance and construction of highways.

Asserting that the proposal to transfer \$5,500,000 from the road fund for the purpose of reducing the general deficit, would be in violation of the federal aid highway law and would subject the state to heavy penalties for misuse, the Texas County Judges and Commissioners Association have gone on record as strongly disapproving the suggestion.

PERFORMANCE

makes the difference

It's what a motor grader will do on the road that counts. With a big advantage in blade pressure, an oversize 64-inch circle, a correct range of speeds, all-bolting construction, complete wear take-up, sure traction, efficient engine power, proper balance and positive control ... the Allis-Chalmers Speed Patrol has what it takes to assure outstanding performance. You get more for your money ... not only in quality construction throughout ... but also in the way the Speed Patrol handles your job ... whether it is maintenance, oil mixing, scarifying, snow removal or ditching. Allis-Chalmers Speed Patrols convert a higher percentage of their weight into blade pressure than any other motor grader. That advantage alone is worth your careful investigation. Ask the A.C. dealer.



EXTRA DIAMETER CIRCLE

The circle is the "foundation" of the moldboard—and the A-C Speed Patrol has a heavier circle than any other motor grader. 64" diameter, accurately machined on FOUR sides. Anti-chatter circle mounting—with double to triple the usual circle support. Extra moldboard rigidity means better work.



ALLIS-CHALMERS SPEED PATROLS

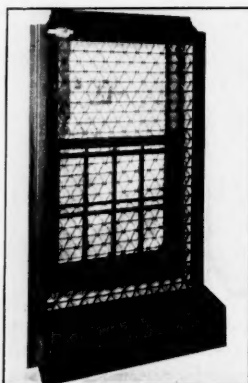
TRACTOR DIVISION—MILWAUKEE, U. S. A.

SINGLE OR TANDEM DRIVE .. NO. 42 AND NO. 54 SIZES .. GASOLINE, DISTILLATE, DIESEL FUEL OIL

New Ways of Doing Things

Wilson Rolling Grille

Protection against intrusion for openings where air and light are required is



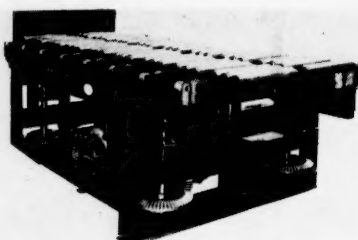
Rolling Grille

round rods separated by $\frac{1}{8}$ -inch by $\frac{3}{4}$ -inch steel triangular shaped links, in such a way as to form a rugged curtain, yet not hindering the view of the premises or merchandise it protects.

offered by the Wilson Rolling Grille — an unique and decorative protective screen. This screen embodies the same principles of construction used with success in Wilson Rolling Steel and Wood Doors for many years. It is constructed of $\frac{3}{8}$ -inch

Mathews Sheet Stack Transfer Conveyor

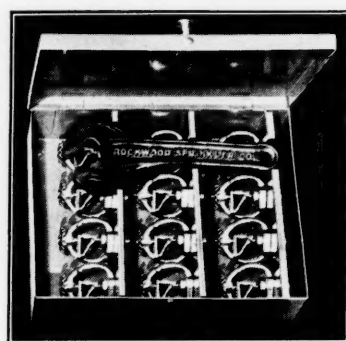
Recent developments of Mathews Conveyor Company, Ellwood City, Pa., include the design and construction of a Sheet Stack Transfer Conveyor to receive stacks of steel sheets and discharge them at right angles onto a processing line conveyor. The unit consists of two lines of rollers mounted in the direction in which the sheets are to be transferred. The driving mechanism lowers the receiver rollers $4\frac{1}{2}$ inches, depositing the sheets on the discharge rollers from which they gravitate to a processing line conveyor. Other late developments of the Mathews Conveyor Company include a system designed to size, wash, grade, and dry potatoes for large growers; live roller conveyors and inclined belt conveyors, etc.



Mathews Conveyor

Emergency Sprinkler Heads

Sprinkler Heads opened by fire or accidentally broken should be replaced at once. To overcome the hazard of not having sprinkler heads available when needed, Rockwood Sprinkler Company, Worcester, Mass., has developed the Rockwood Emergency Sprinkler Head Cabinet for storing an adequate number of spare sprinkler heads where they may be conveniently found, and at the same time protected from dust and injury. The cabinet is of steel construction with all welded joints, $11\frac{1}{4}$ inches by $8\frac{3}{4}$ inches by 3 inches.



Emergency Sprinkler Head Cabinet

Precision Oil Film Bearing

Developed after many years of scientific research and thorough testing, Fast's Precision Oil Film Bearing, manufactured by The Fast Bearing Company, Baltimore, Md., like Fast's Self-Aligning Coupling, carries the load on a perfect oil film, thereby preventing metallic contact and resulting in virtually unlimited life under severe conditions of service. These bearings are built to meet the most exacting requirements of industrial applications, embodying the Hydrodynamic Theory of Lubrication applicable only to precision oil film bearings. Each bearing functions as a self-contained centrifugal force feed pump creating a reliable and efficient lubrication system.



Fast Bearing Assembly

Gould Vertical Centrifugal Coolant Pump

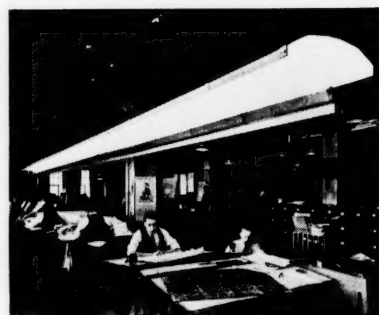
Built only in the $\frac{3}{4}$ -inch size and designed especially for the circulation of coolant, cutting compounds or similar liquids containing abrasives in suspension, a small, compact, vertical, submerged type centrifugal pump has been introduced by Goulds Pumps, Inc., Seneca Falls, N. Y. The impeller which is of the open, double-suction type, hydraulically balanced to eliminate end thrust, is mounted directly on an extra large diameter extended motor shaft, eliminating the necessity of any lower pump bearing. Pump casing



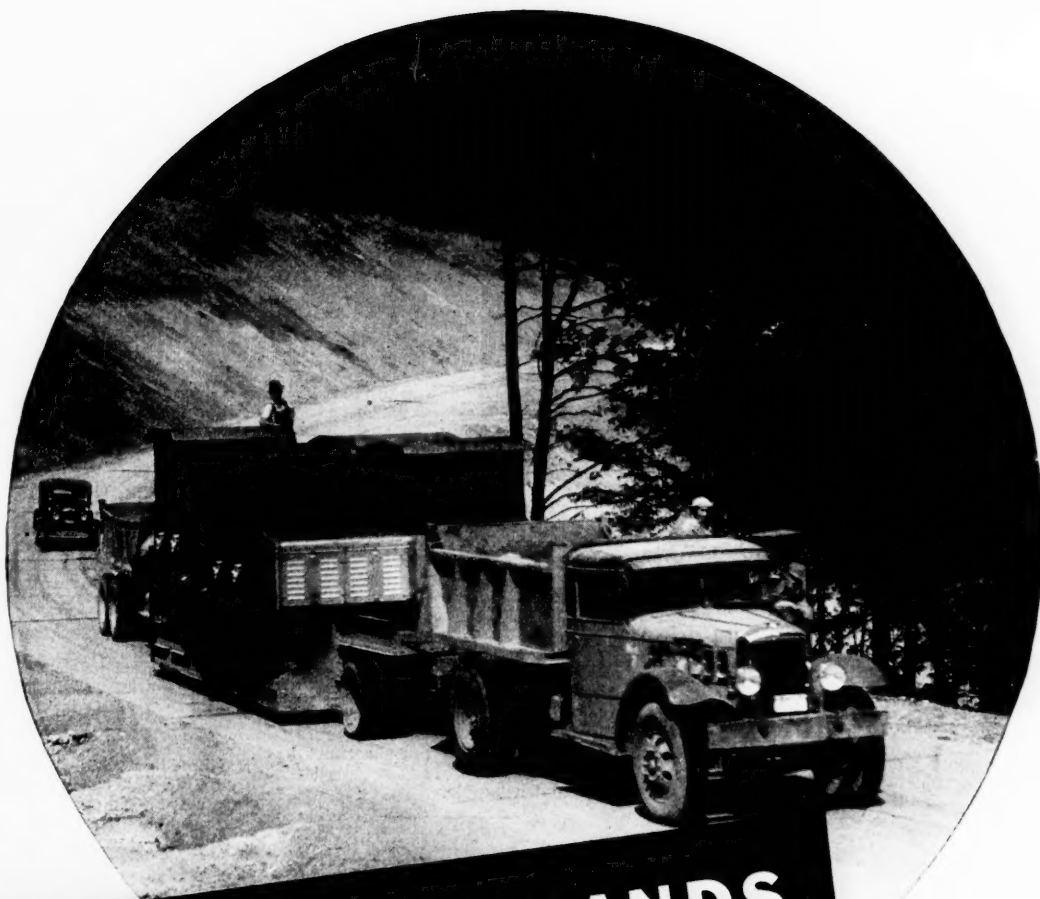
is cast integral with motor support, at the top of which the motor is held in position with a male and female lock to insure permanent alignment. Clearances between impeller and casing are sufficient to remove the possibility of binding from chips. The motor is of $\frac{1}{4}$ -horsepower at 1750 R.P.M., and capacities are up to 30 gallons per minute, with heads up to 19 feet.

For More Efficient Lighting

A Curtis "Light-Hood" supplies its own ceiling in this modern fixture by Curtis Lighting, Inc., Chicago, as installed in the drafting rooms of the Republic Flow Meter Co., Chicago. Practically shadowless indirect illumination of an intensity of 35-foot candles on the working surface of the boards by a 50-foot section of Curtis "Light-Hood" equipped with 150-watt bulbs on 30-inch centers.



Curtis "Light-Hood" used by Republic Flow Meter Co.



TENS OF THOUSANDS OF 20-TON LOADS Didn't phase this Concrete Road

Four industrial locomotives on one trailer—65 tons including pusher, truck and trailer. The concrete pavement to Norris Dam carried such loads without damage.

Back in 1934, a 4.8-mile heavy-duty section of the TVA free-way was completed from Coal Creek to the site of Norris Dam, Tennessee. It was to serve, first, as the only available means of transporting materials to the dam; and, second, as part of a 21-mile connecting link between two important routes.

In less than two years, many thousands of 20-ton loads of construction materials and processions of massive machinery trailers rolled over the road. One truck and trailer unit hauled a single load as great as 65 tons. And, in addition, hundreds of thousands of tourists drove to the dam.

You would expect service like that to "age" a road in a few months. Did it harm this pavement? Not that anyone can notice! The highway is in excellent condition today, having required almost no maintenance.

As to *your* roads, of course no two present the same design problem. But you can be certain that concrete will provide the greatest load-carrying capacity . . . and the longest and most satisfactory service . . . per dollar of public expense. Write for report, "*Road Surface Maintenance Costs*," covering the most complete analysis of its kind ever made.

PORTLAND CEMENT ASSOCIATION
Dept. 10-21, 33 W. Grand Ave., Chicago, Ill.

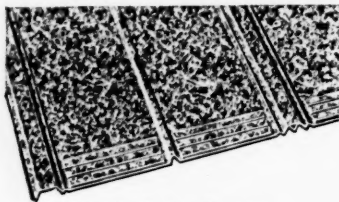
A National Organization to Improve and Extend the Uses of Concrete

New Ways of Doing Things

(Continued from page 54)

Triple Drain Channel Roofing

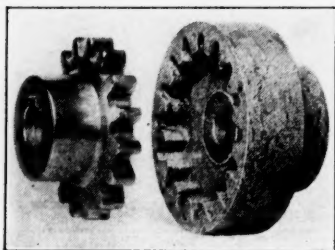
Developed by Republic Steel Corporation, Cleveland, Ohio, a new roofing product is being introduced by the company under the trade name of Republic Perfected Triple Drain Channel Roofing. An outstanding construction feature of the product is the use of four ridges and three valleys in each channel unit, thus providing three drainage channels instead of one or two as is usual. This innovation, it is declared, prevents driving rain and capillary attraction from causing leaks. A beaded channel makes a tight fit on the overlapping edge, creating a vacuum action. Rain passing this point is carried into the center channel through gravity. Available in three types of metal—steel, copper-bearing steel, and rust-resisting Toncan iron—Triple Drain roofing is furnished in 26, 28 and 29 gauge, in lengths from 5 to 12 feet with covering width of 24 inches.



Triple Drain Roofing

Celeron Sprocket Coupling

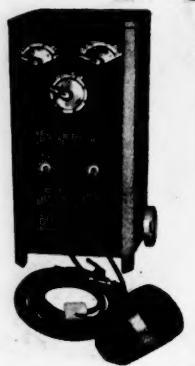
The Continental-Diamond Fibre Company, Newark, Del., has introduced a new Celeron Flexible Coupling that offers such advantages as great strength, light weight and low cost. Celeron is a laminated or molded macerated synthetic material widely used for the construction of silent gears and valve discs, not affected by heat or cold, oil, water, gasoline and many acids. It has a tensile strength of 10,000 pounds per square inch, a flexural strength of 20,000 pounds per square inch, and a compressive strength of 38,000 pounds per square inch. Celeron is also a good electrical insulator, and a motor equipped with the female or Celeron half of the coupling is insulated from the unit it drives. The couplings are made in seven standard types.



Celeron Sprocket Coupling

Welder With Dual Controls

Miller Electric Manufacturing Company, Appleton, Wis., announces an A. C.



Welder with separate voltage and amperage controls which enable the operator to select the most desirable voltage for the amperage used on any job. Known as "Dual Control," the welder furnishes practically unlimited current settings, and is easy to operate. It is compactly but heavily constructed for hard usage,

made in three sizes with a current range from 10 amperes to maximum output that makes possible welding of sheet metal or other heavy metals. It is equipped with wheels and a handle.

New Products of Crane Company

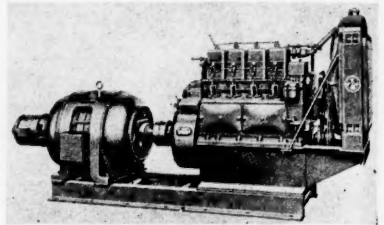
Two new products have been added to the list of those manufactured by Crane Company, Chicago, Ill., including a new gas line cock with recessed ends for use on curb box installations, and a new line of hammer lug unions. The new cocks are made with flat head, brass plug and washer, and galvanized iron body. They come in sizes of 3/4-, 1-, and 1 1/4-inch. The unions comprise two distinct lines: forged steel screwed unions with one set of lugs, and forged steel screwed unions with two sets of lugs, both designed for use in piping systems.

Norton Multipurpose Grinder

Embodying advanced features which make it equally efficient for miscellaneous general production or for the tool room, a completely redesigned model of their Multipurpose Grinder is announced by Norton Company of Worcester, Mass. The new machine is much heavier than previous models, and among features which add to its versatility and long life are: hydraulic power work table reverse; an universal wheel head and work head, the latter being so arranged that either live spindle or dead center are instantly available; force feed lubrication of the table ways, and a wheel spindle of large proportions, each bearing being individually and automatically lubricated. The machine is designed for direct motor drive only, a feature being that principal mechanisms are driven by individual motor.

F-M Diesel Generating Sets

Representing an outstanding development in the design and construction of unit-built generating plants in comparatively small capacities, the Fairbanks-Morse Model 36-A Diesel generating sets are described and illustrated in Bulletin 3600-A2 issued by Fairbanks, Morse & Co., Chicago, manufacturers of these units. The sets are widely used in industrial plants, either as independent units carrying the entire load or for parallel or auxiliary operation in conjunction with other electrical service. They are compact, easily installed, and may be operated with little attention. Alternating current sets are offered in ratings from 5.3 to 100 kva. and direct current sets from 5 to 80 kw.



Diesel Generating Set

Silicosis Preventative

New blower and dust suction hoses to eliminate undesirable dust and gases that are a frequent cause of silicosis, are announced by United States Rubber Products Co., of New York. Dust Hose P-5508, (for abrasives) is designed for either suction or light pressure, such as that generated by a blower, is supported by a steel wire helix and finished with outside corrugations. Blower hose, P-5509, (for fumes only) is similar to the dust conveyor hose with respect to construction and reinforcement but it is lighter, and compounded tube is utilized. Flexibility for turns is a feature of both hoses.

We regret that in printing an account of the above in the August issue of the MANUFACTURERS RECORD, the wrong illustration was used.



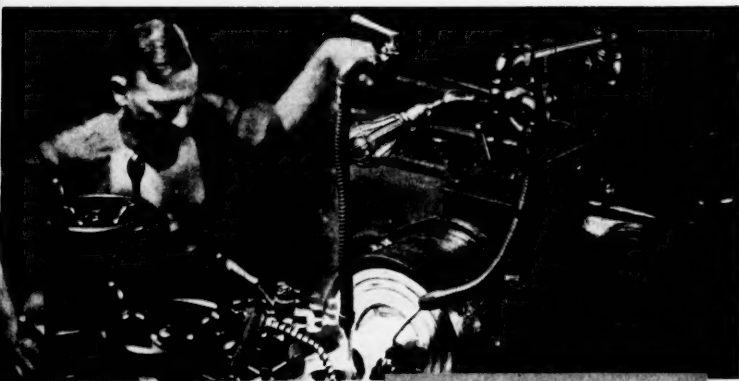
Dust Conveyor Hose

AIRCO Alloy Steel Gas Welding Rod

Successfully passing severe tests, both in the shop and in the field, a new gas welding rod has been developed and introduced by Air Reduction Sales Company, New York, N. Y. This is the AIRCO No. 1 High Ductility Alloy Steel Rod, which was designed to meet a demand for increased ductility and general improvement in quality of both single and multi-layer steel welds. An outstanding feature of the new rod is its ability to withstand considerable heating without burning.



It's the same in both..
**THE PURCHASE PRICE ALONE
 MEANS NOTHING...**



Photograph courtesy of
 The Warner & Lowrey Co.

...it's the **COST OF THE
 WORK IT DOES** *that counts*

THE ONLY SOUND WAY to figure tire costs is exactly the same way you figure the cost of any productive item you buy for your business.

The cost of a turret lathe, for instance, is not the purchase price, but the cost per unit turned out—price divided by work done.

In tires, it's price divided by mileage and payload carried. You can never know what a tire has really cost you until you know how far it has gone and how many tons or packages it has carried.

That's why General Truck Tires have always been built stronger—to deliver greater mileage and haul more payload. It costs more to build a General Tire because of the way it is built. Thousands of truck operators know it costs less to use Generals because of the way they perform.

Your local General Tire dealer is ready to offer you the benefit of his factory-training and practical truck tire knowledge. He may be able to reduce your tire costs materially.

THE GENERAL TIRE & RUBBER COMPANY • AKRON, OHIO
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STRONGER—All plies are full plies anchored at the bead—no floating "breaker strips"—every inch and every ounce is there for just one purpose—to produce more miles and a lower cost for you.



COOLER—They flex uniformly without that heat-producing "hinging action" of ordinary breaker-strip tires. Heat kills the life of cords and cuts down the miles in a tire. Generals are cool—that's why they run more miles at a lower cost for you.



"COMPACT RUBBER" TREADS—All tires stretch due to fatigue in the fabric, but Generals, having no idle, half-way plies, stretch least of all. The tread is kept compact and compressed against the road—that's why it produces more miles and reduces your cost.

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**THE
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**THE COMMERCIAL
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**THE CLEATED
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**THE
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**THE
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GENERAL TRUCK TIRES



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ACI Quality Coals, produced and sold by our 134 constituent companies, are backed by the finest engineering service available in the United States. The Fuel Engineering Division of Appalachian Coals, Inc., and the trained fuel engineers, who work for our agents, are ready to help you choose the ACI Quality Coal that is best suited to your particular needs; ready to help you solve coal selection and application problems; ready to give you assistance in all coal utilization matters.

Feel free to consult the ACI engineers or the fuel technologists representing the companies which produce and sell ACI Quality Coals. Lists of these producers and agents are available. Write for them today. There is no obligation.

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GWYNN CROWTHER, President
BALTIMORE, MARYLAND

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Member Federal Deposit Insurance Corporation

» » » Finance « « « AND KINDRED SUBJECTS

More Borrowers Desired

The Federal Reserve Board recently announced more liberal discount regulations. Various classes of paper not heretofore considered as eligible for rediscount are to be regarded more favorably. The purpose is to encourage wider lending by member banks, which will be asked to consider installment paper for commercial purposes, as well as more real estate and other loans.

With excess reserves mounting, despite what has been said of the increase in commercial borrowing, for which there is still a notable lack of demand throughout the country, banks have had liquidity preached to them to such a degree that they cannot be expected to at once respond eagerly to requests for loans heretofore not considered as rediscountable. In the meantime, the efforts of leading finance companies to shorten their installment credit terms should be helpful to the situation. An article on another page by Chairman Duncan of the Commercial Credit Company explains clearly the sound reasons for such a course. While this applies mainly to retail sales and consumer buying, it is along lines that will make for a firmer credit structure.

Railroads and Their Employees

Negotiations between the railroads of the country and the brotherhoods, comprising five major groups of employees, over the demand for 20 per cent increase in wages, is likely to come to a satisfactory conclusion at an early date. It is expected that a compromise will be reached, placing less of a burden on the railroads than the increase asked for would be, and at the same time it is likely that a figure satisfactory to workers will be settled upon.

Coupled with it, and of particular interest to the roads, is the appeal to the Interstate Commerce Commission by the carriers for increased freight rates on certain commodities. More than 100 million dollars was the amount involved in the original demand of the unions, but it is anticipated that something less than 50 million may be decided upon as a compromise.

If the request for higher freight rates is granted, additional annual revenue may be procured of slightly less than 40 million dollars. Southern manufacturers are asking for lower freight rates more nearly on a parity with rates of other sections. The situation is complicated because railroads are hardly in a position to bear greatly increased expenses without some offsetting return. Their tax bill is running beyond all records and they are handicapped by other legislation with a possibility of the shorter freight train bill adding tremendously to their expense of operation. Back of it all looms, in the minds of business and railroad management, the specter of government ownership.

Independent Retailer Leads

The *Industrial News Review* has compiled figures prepared by the Census Bureau giving the proportion of retail business done by independent stores in the United States. The figures are interesting. They are—1,474,000 independent stores compared to 139,000 chain stores. Of total sales, independents footed more than \$24,000,000,000, while the chain store sales were more than \$8,000,000,000. In percentages, independent stores had over 73 per cent of the total, while the chain percentage accounted for the balance.

(Continued on page 60)

THE STAGE IS SET...
The curtain goes up
December 6 on the
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INDUSTRIES**

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for the
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ARMCO
SHEET METALS

CALL THE ARMCO DISTRIBUTOR TODAY

"Finance and Kindred Subjects"

(Continued from page 58)

Amend the Surplus Tax

It is understood the Treasury Department is yielding to appeals for changes in the undistributed profits tax law, and will present to Congress a plan to lighten the load.

Perhaps no part of the tax structure has elicited more resentment than the surplus profits tax. It is detrimental to business from many standpoints. It stops the small business man in his efforts to expand along the lines which prudence dictates of putting earnings back into business development. It drains the surplus account of business savings for a rainy day and is a damper upon initiative and enterprise.

The hoped for borrowing from banks for the purpose of business expansion and plant extension has not materialized.

The President of the U. S. Chamber of Commerce declares that experience with the tax on undistributed profits has fully demonstrated the validity of the objections made when the tax was under consideration by Congress. He says: "The surtax in actual operation is one of the most important factors now retarding an increase in employment. It restricts normal business development and produces great unevenness in taxation. * * * Congress should give attention to outstanding hardships and inequities shown to exist."

A Serious Situation

The American Federation of Investors, Inc., announces itself as "not for profit, but to safeguard the interests of citizens having investments in securities or property of any kind." It calls attention to what it describes as a serious situation faced by the American people which is "more dangerous because its seriousness is not generally understood."

In directing attention to the Federal debt, now over \$37,000,000,000 due to our spending of seven years as a nation more than we have taken in as income, the Association gives, in its publication "Investor America," facts and figures of government income and outgo, with expenditures set down under different classifications such as general expense, recovery and relief, revolving funds, transfers to trust accounts, and debt retirement. Any contemplation of the tremendous totals leads to the question of how long it will be before the budget is balanced.

A Study of Banking and Credit

Robert Strickland, of Atlanta, President of the Trust Company of Georgia, is also President of the Association of Reserve City Bankers, a fact finding organization which considers not only banking needs, but the needs of business generally. In a recent announcement President Strickland says: "Plans have been completed to initiate an impartial and scientific study of American banking, credit and other financial problems. Among subjects suggested are: Changes in the capital requirements of business; the future of commercial loans, and the demand for short term capital loans; consumer credit and installment financing; also, real estate mortgage financing—its place in the banking structure."

It is believed that the present undertaking is the first effort toward comprehensive research in the financial field since the National Monetary Commission of 25 years ago. The step is the result of three years of study and consultation with economists, publicists, government officials and business men.



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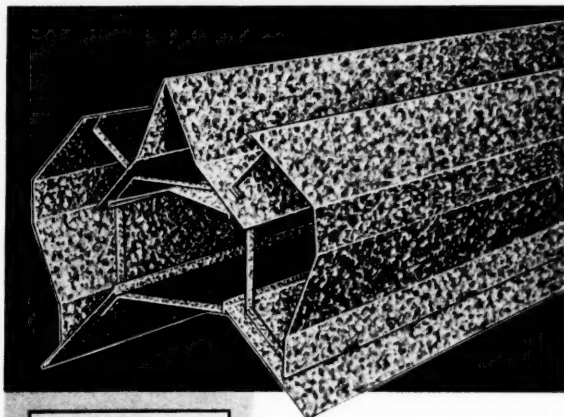
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THE ORIGINAL CONTINUOUS VENTILATOR

INDUSTRIAL NEWS

Babcock and Wilcox Tube Distributors

The Babcock & Wilcox Tube Company, Beaver Falls, Pa., announces the appointment of Ulrich Supply Company, 914 Central Street, Kansas City, Mo., as distributor of B & W Seamless Boiler Tubes in the Kansas City trade territory—Western Missouri and Kansas.

Order For Large Allis-Chalmers Kiln

With a length of 250 feet and diameter of 11 feet, a rotary kiln costing \$62,500, said to be the largest ever supplied to the paper mill industry, will be installed in the plant of Southern Kraft Company at Spring Hill, La. The kiln is being supplied by Allis-Chalmers Manufacturing Company, Milwaukee, Wis., for the recovery of lime in the chemical and pulp mill. Plant No. 8, where the installation will be made, will have a daily production capacity of 800 tons of pulp. Allis-Chalmers has previously supplied similar kilns of various sizes to a number of other plants of Southern Kraft Company.

Compensation Insurance Premiums Up

Showing an increase of 29.3 per cent for the first seven months of 1937, compared with the similar period of 1936, premiums for workmen's compensation insurance placed with American Mutual Liability Insurance Company, Boston, Mass., indicate continued industrial development and recovery in employment and payrolls throughout the country, according to Robert M. Allen, Assistant to the President. This point was cited by Mr.

Allen at a recent meeting of the company's Maine Advisory Board at Hotel Lafayette, Portland. Nathan Cushman, president of Cushman Baking Company, Portland, is president of the board.

General Electric Visitors

For the first six months of 1937, a total of 62,836 persons visited the Schenectady Works of General Electric Company, coming from every state of the Union and representing every walk of life. The total included 118 clubs, classes and other organizations which were conducted through the plant in groups. One such group consisted of 30 teachers from the College of the Pacific, while another delegation was made up of a number of junior clerks from the Bankers Trust Company, New York. F. H. Field is head of the General Electric reception office.

Will Handle Construction Equipment

Organized for handling construction equipment, the new firm of Whitehead-Comley, Inc., has its plant and offices at 5600 Grays Avenue, Philadelphia, Pa. G. A. Whitehead, president of the new company, is the Philadelphia distributor for the Owen Bucket Company and owns and operates Maris Brothers, Inc., builders of overhead electric and hand operated traveling cranes. Mr. Comley was previously associated with the Equipment Corporation of America in its Philadelphia office. The new organization will handle rental and sale of new and used equipment.

Bantam Car Company Directors

Fred A. Hahn, president of the investment brokerage firm of Fred A. Hahn Company, Chattanooga, Tenn., and Dean B. Copeland,

vice president and director of the Butler County National Bank and Trust Co., of Butler, Pa., have been named to the board of directors of The American Bantam Car Company, Butler, according to R. S. Evans, president. Mr. Evans is also head of Evans Motors of Tennessee, Inc., Nashville, and heads automobile distributing companies in many of the Southern states. The American Bantam Car Company plans to begin the manufacture this fall of 1/4-ton trucks, coupes and roadsters to be named American Bantam.

Acme Steel Sales Representative in Georgia

F. H. Webb, manager of the Atlanta office of Acme Steel Company, Chicago, Ill., announces the appointment by the company of C. A. Carrell, Atlanta, as sales representative in Georgia. Mr. Carrell, who succeeds the late Hugh Duane, has been associated with Acme Steel for seventeen years and is well informed as to requirements of the Southeast for the company's products, including balistics, Steel-strap for reinforcing shipments, strip steel and stitching wire.

Largest Battery for Truck Service

Declared to be the largest battery ever built for heavy duty electric industrial truck service, the Super-Type FLM-13 Exide-Ironclad is announced by The Electric Storage Battery Company, Philadelphia, Pa. With a cell capacity of 1080 ampere hours at the normal six-hour discharge, the complete 16-cell battery, assembled in a steel tray, occupies a space of only 26 inches by 51 inches and weighs 21 1/2 tons. It has a capacity of 33 K. W. H.—almost twice that of an 18-cell TLM-21 Exide-Ironclad, the largest size of this type of battery that could be assembled in the same space.

In double-shift service, the steel tray assembly permits quick exchanges and continuous, dependable service through the use of duplicate batteries, as the steel tray may readily be rolled or lifted from the truck when one battery is discharged and a freshly charged battery installed in its place. "The Super-Type FLM-13 Exide-Ironclad battery has been designed and built for tomorrow's trucks, as well as for the big trucks of today," says William Van C. Brandt, manager of the Motive Power Battery Division of The Electric Storage Battery Company.



Sidewalls and Roofs ETERNIT-Protected

Pictured is the South Bay Plantation of the U. S. Sugar Corporation of Clewiston, Florida. The sidewalls are Eternit Timbertex Asbestos-cement Siding—the roofs, Eternit Hexagonal Asbestos-cement Shingles.

Eternit protection means that the roofs and sidewalls are rot-proof, fire-proof and time-defying. It means paint or stain will never be required to prolong their life.

These shingles and sidings combine beauty with safety and economy. Before you build or modernize, it will pay you to investigate. Address Dept. M.R. 10-37

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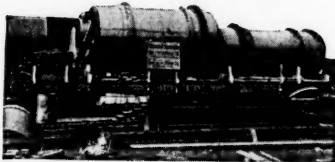
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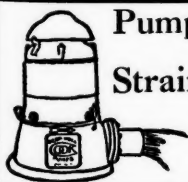
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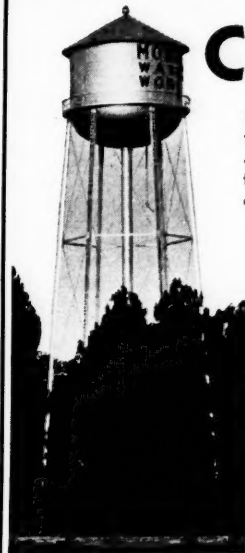
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STORY OF STEEL—

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PREVENTING HIGH TEMPERATURES—

Bulletin—on the "Airblanket" Heating Method, telling of a novel way to prevent accumulation of high temperatures under the roof of factories heated with unit heaters.

Airtherm Manufacturing Company, St. Louis, Mo.

ARC WELDING—

Publication—advanced proof of first edition of "Arc Welding Foundation News."

The James F. Lincoln Arc Welding Foundation, Cleveland, Ohio.

MEEHANITE METAL FOR ENGINE CASTINGS—

Booklet—announcing added and exclusive feature to quality of Cooper-Bessemer Diesel and gas engines for marine and stationary service, through use of Meehanite Process in producing engine castings.

The Cooper-Bessemer Corporation, Mt. Vernon, Ohio.

WATER HEATERS—

Bulletin No. 35-76—on ABSCO Water Heaters for industrial and institutional installations, including Type E heater for gravity recirculation, submerged heater and condensate cooling service, and Type F heater for maintaining suitable water temperatures to prevent water freezing in elevated steel or wooden tanks.

American District Steam Company, North Tonawanda, N. Y.

METALS IN COLOR—

Folder—showing samples of TINT-METAL (Bright Metal in Colors), new development in pre-finished metals.

American Nickeloid Company, Peru, Ill.

OIL WELL DRILLING—

Booklet—"Oil Well Drilling with 'Caterpillar' Diesel Engines," citing specific examples of "Caterpillar" Diesels powering rotary rigs, cable tool rigs and spudders.

Form 4373.

Caterpillar Tractor Company, Peoria, Ill.

DIRECT-FIRED UNIT HEATER—

Catalog—"The Lee Direct Fired Unit Heater," illustrated.

Dravo Corporation, Machinery Division, Dravo Building, Pittsburgh, Pa.

FIRE PROTECTION—

Bulletin—"Lux Makes the Difference," illustrated, showing what a built-in carbon dioxide fire protection system means to industrial plants and electrical properties.

Walter Kidde & Company, Inc., 140 Cedar St., New York.

PROPELLER EXHAUST FANS AND VENTILATORS—

Booklet—"Propellair Fans," devoted to improved airplane propeller and exhaust fans.

Propellair, Inc., Springfield, Ohio.

CEMENT AND CONCRETE—

Booklet—"Cement and Concrete Reference Book 1937," containing current statistics and general data on the Portland cement industry.

Portland Cement Association, 33 West Grand Ave., Chicago, Ill.

MERCURY SWITCHES—

Catalog 603—devoted to complete line of GE Non-see-for Mercury switches, featuring full-size illustrations of 12 common types of mercury-to-mercury and mercury-to-metal switches, with table showing capacity and electrical specifications of each type.

General Electric Vapor Lamp Company, Hoboken, N. J.

ELECTRODES FOR WELDING—

Catalog Section 26-640—Crucible Weld electrodes for a. c. welding, describing the three grades and sizes available and their application to all types of a. c. welding.

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

FRICK REFRIGERATION—

Bulletin—"Frick Refrigeration in Philadelphia and Vicinity";

Bulletin No. 508B—company publication titled "Ice and Frost," featuring Freon-12 Compressors.

Frick Company, Waynesboro, Pa.

Sulphur Taxes in Louisiana

Langbourne M. Williams, Jr., president of the Freeport Sulphur Company has been advised by the Louisiana State Board of Industry and Commerce, that "in response to growing public sentiment, official action may soon be taken in Louisiana to relieve the existing tax burdens on the state's sulphur industries."

A letter addressed to Mr. Williams contained a formal request that the company consider resumption of its \$300,000 construction program at Port Sulphur and restoration of production to levels achieved prior to July, 1936, when the state severance tax on sulphur was increased from 60 cents to \$2.00 per ton.

The letter further referred to the determined efforts Governor Richard W. Leche was making to create greater employment and to protect industry.

The output of sulphur in Louisiana was reduced 23 per cent after the \$2.00 tax rate became effective last year and this is to be compared with an increase in production of 37 per cent in Texas.

Southern Company Buys Massachusetts Plant

The R-H-R Company has purchased the plant of the Otis Company at Ware, Mass., to be taken over on November 8, 1937. First payment of \$50,000 was made on September 27 when contract was signed. The purchase price was quoted as in excess of half a million dollars.

L. W. Robert, Jr., of Washington and Atlanta is one of the principal new owners. The new owners expect to clear out several of the buildings containing old machinery and replace with new equipment making full use of the hydroelectric and steam plant now in operation there. Several new small industries are negotiating for leases for space and power, and contracts will be signed as soon after November 8 as practical and new equipment is installed.

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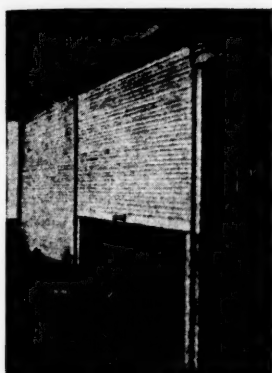
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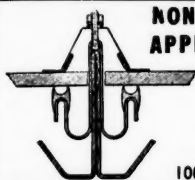
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Our Stake In Conflict Between Japan and China

BY
Eric Morrell

THE insistence that this country has nothing at stake in China except the limited holdings of a few, may be open to question when certain facts are considered.

The Sino-Japanese contretemps involves primarily, on the one hand, a country that is the source of important raw materials in large and potentially larger amounts, and a market of great present and of vastly greater potential value. On the other hand is a nation highly developed economically, with a rapidly increasing population, a small land area, and at present dependent on importation for virtually every raw material.

But to gain a clear conception of the picture, necessitates a review of events prior and subsequent to the Manchurian conquest. It also requires an appreciation of the Chinese people.

Predominantly an agricultural country, approximately 85% of the population being engaged therein, these ancient people went their ancient ways of self sufficiency till long after the majority of the world had become industrialized. But in 1900, after a futile attempt to drive out the foreign industrialist from their midst and return undisturbed to the old mode of living, they turned their back on the past and began the attempt of participation in the economic rivalry for their own trade and development.

To a people such as these, a sudden metamorphosis was almost impossible, involving as it did, an entirely new concept of ideas. It is not surprising, therefore, that China two, or even three, decades later was only just emerging from a period of gestation that had been fraught with considerable strife and hardship.

One of their greatest hindrances has been that of the political equation. Since the revolution and overthrow of the Manchus in 1911-12, China has passed through a vast number of political changes, and though a nationalist government has now been established, the legacy of provincial militarism has not been entirely eradicated.

The old methods were untenable and the new foundations were not securely laid nor the new methods completely worked out, when the first open aggression of the Japanese manifested itself in the conquest of Manchuria.

Chinese-Japanese dissension dates recently from 1919 when German holdings in Shantung were granted to Japan in the Versailles treaty. Although for a

time Japan's attitude was of a conciliatory nature, intention to dominate Chinese trade markets was soon made evident and the era of aggressive land confiscation commenced.

Since the turn of the present decade, this Japanese policy has been preeminent, and its effect on American export trade may conceivably have far reaching results.

With the Chinese farmer the policy of self-sufficiency, whether dictated by necessity or as an inherency, or a combination of both, found expression in quantity and variety of crops produced. On his inherited land, he raises, first, edible crops sufficient for his family and livestock, after which he grows such cotton as will be needed for the family's clothes, and either cotton or grain in excess to cover the cost of taxes and miscellaneous necessities.

In Hopeh and Shantung, two of the five northern provinces in which Japan is primarily interested and to which reference is made here, the soil and climate are admirably suited to the production of cotton, a commodity vital to Japan.

These provinces, however, with their hot summers and severe winters are subject to droughts and floods, and make them a land of frequent famine. Such a condition has lent itself to the economic foresight of the Japanese in Manchuria, a land of grain, and, looking ahead to the occupancy of these provinces, the Chinese farmer has been persuaded to increase

his cotton crop and trade it to the former for grain and the manufactured articles of Japan.

The result of this economic strategy supported by strong-arm methods, is reflected in America by a serious decline in cotton exports to China. In less than five years production of cotton in Hopeh and Shantung has more than quadrupled with a proportionate drop in American exports.

At the same time, the heavy increase of Japanese cotton purchases, though gratifying at present, appear in a different light when consideration is given to the preparation for a well organized textile industry in Japan, ready for the utilization of a large cotton crop grown on its own land.

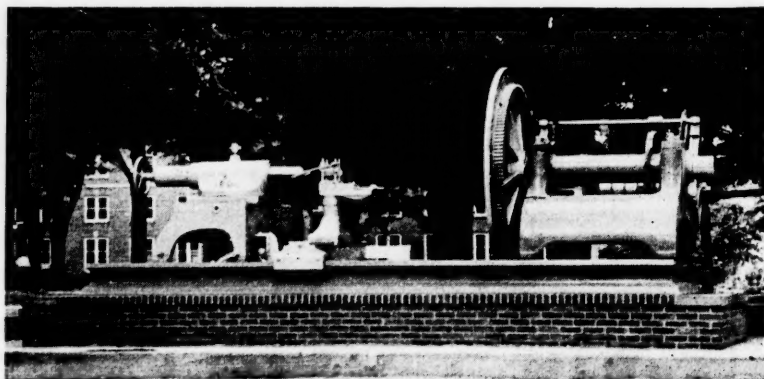
That confiscation of these northern provinces is a major objective of the Japanese, there can be little doubt, and if cotton production under intensive economic control is placed in effect, the United States is faced with a potential loss annually — figuring cotton at ten cents per pound, that is equal to about one-third of our present estimated investments in China.

The possibility of this loss, amounting to tens of millions of dollars each year, would be borne almost entirely by the South, and with cotton in the position it is in today, it is suggested that this country's interest in the Sino-Japanese embroilment is greater than would appear on the surface.

A Confederate Lathe

A lathe which was used in the Confederate Gun Works, at Selma, Ala., to drill the bore of cannon, has recently been presented to the Alabama Polytechnic Institute by the Tennessee Coal, Iron and Railroad Company, subsidiary of the United States Steel Corporation.

The Tennessee Company acquired it many years ago from the old Linn Iron Works, where it was used for the more humble but useful purpose of turning locomotive tires. It is of interest to note that the lathe is still perfectly attuned and capable of precision work today. The institute has accorded this historic machine a prominent and suitable resting place on the campus at Auburn, Ala.



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Items of Interest

Pictures by the Million

News comes from Germany of pictures of bullets striking armor plate which were taken at the rate of 250,000 exposures per second.

The U. S. Department of Commerce reports that the exposures are made by using a series of electric sparks with a stationary photographic plate instead of film. The inventor of the method is now working on frequencies of nearly 1,000,000 a second, and states that it is theoretically possible to increase the frequency up to 5,000,000 or even 10,000,000 exposures per second. The chief difficulty, however, in this connection is to find anything moving fast enough to make use of such incredible photographic speed.

Coal Freight Rate Cut By I. C. C.

Fine coal shipments from the mines of Alabama, Kentucky, Tennessee and southwest Virginia to Charleston, S. C., and Brunswick and Savannah, Ga., will in future be reduced 35 cents per ton, according to a recent authorization by the Interstate Commerce Commission to the Southern Railway and other carriers. The rates prevailing at present are to be maintained for intermediate points.

68,000,000 Pounds of Pecans

According to the Department of Agriculture, the 1937 pecan crop is now expected to yield over 68 million pounds. The previous estimate was much below this amount but favorable conditions in Mississippi have caused a revision. This figure represents an increase of approximately 5 million pounds above the average for the five-year period, 1928-32. The crop yield for 1936 was only 40,135,000 pounds.

Foreign Trade Zone Established at Mobile

Issuance of a grant to the Alabama State Docks Commission for the establishment of a foreign trade zone at Mobile, Ala., marks the second venture of this kind in the United States which is designed to stimulate and encourage international commerce.

The zone which at present covers an area of over 15 acres, embraces one slip 220 feet wide and 560 feet long with seven warehouses of 238,200 square feet floor space, is of modern construction costing about \$1,000,000. Relatively small changes will be necessary to bring specifications within the standard required by the Foreign Trade Zones Board.

T. C. I. & R. R. Employment Gains

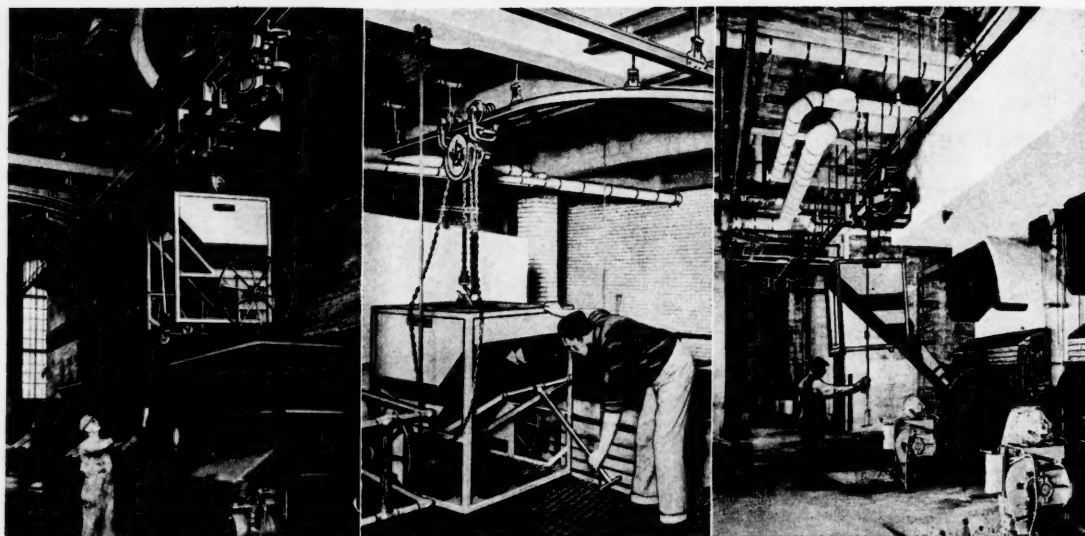
Employment rolls of all operations of the Tennessee Coal, Iron & Railroad Company, as of September 1, showed an increase in excess of 37 per cent as compared to the figure of last January 1.

The total employed by the Tennessee Company as of September 1 was 27,265, an increase of 7,442 above the 19,823 on the payrolls at the beginning of this year. On January 1, 1936, there were 15,014 persons employed by the firm in all operations; July 1, 1936, 16,133; January 1, 1937, 19,823; April 1, 1937, 23,156; September 1, 1937, 27,265.

All functions of the Tennessee Company now are in operation except Fairfield Blast Furnace No. 6 and the Ensley Rail Mill.

New Air Line

Formation of the American Export Air Lines, Inc., is announced by the Export Steamship Corporation of Baltimore, of which it is a subsidiary. Application has been made by the company to the Department of Commerce for permission to make preliminary flights with a view to developing air connections with the Mediterranean, where the parent company does much of its business.



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"Stone Perfect...

**Finish As Good As When
Installed 5 Years Ago..."**

That is a quotation from a letter written by Weiss, Dreyfous & Seiferth, architects of New Orleans, referring to the Lapeyre-Miltnerberger Convalescent Home, shown above, which they designed, and on which polished spandrels of Virginia Black Serpentine were used to accentuate the horizontal lines.

As a result of the architects' complete satisfaction with Virginia Black Serpentine, we have just received a contract for this stone to be used in the same manner on the seven million dollar Charity Hospital, New Orleans, also designed by this firm of architects.

We will be glad to send you a set of samples, conveniently boxed, showing the range of stone from the Alberene Quarries in Virginia and to answer inquiries promptly. Virginia Black Serpentine is excellent for interior trim, fireplace facing and hearths, etc., as well as for spandrels, bulkheads, etc. Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York, N. Y. Quarries and Mills at Schuyler, Va.

Virginia Black SERPENTINE

A NATURAL QUARRIED STONE
OF DIVERSIFIED ARCHITECTURAL UTILITY

Items of Interest (Continued)

Chemical Exports Increase

Chemical exports from the United States are reaching up toward 1929 levels. During the first half of the current year the total was \$90,000,000 in value, as compared with \$75,600,000 in the corresponding months of 1936.

At the same time imports of chemicals into the United States have shown marked increases. During the first half of this year they exceeded \$119,000,000, which is to be compared with \$84,000,000 in the same period a year ago.

Among other imports showing increases were materials used in the manufacture of paints, varnishes and lacquers, which increased about 52 per cent. Receipts of varnish gums advanced from 34 to 55 million pounds; flaxseed from over 6¾ million to over 17½ million bushels; tung oil from 83 to 96 million pounds.

Air Passenger Traffic

Although the air passenger traffic for August fell below that of July, it was well ahead of the corresponding month of 1936. The month of July was the industry's record with 17 companies reporting a total of 44,099,684 revenue passenger miles as compared to 38,504,000 for August.

Of the three Transcontinental lines, United Air Lines Transport Corporation was the only one to show important gains over July, having flown 13,400,000 miles more in August than in any one previous month in their history and at the same time more than any other line has ever before flown in one month.

The larger ships now being used by the principal lines are enabling them to increase their passenger mileage without increasing their airplane miles. American Airlines reports that revenue passenger miles for August showed a gain of 36.8 per cent over the same month last year, yet the airplane mileage only increased 9.6 per cent.

Totals for the first five months of 1937 indicate that there was a gain of 8.9 per cent in number of passengers and 25.1 per cent in express poundage over the same period of 1936.

Freight Transport Time Reduced

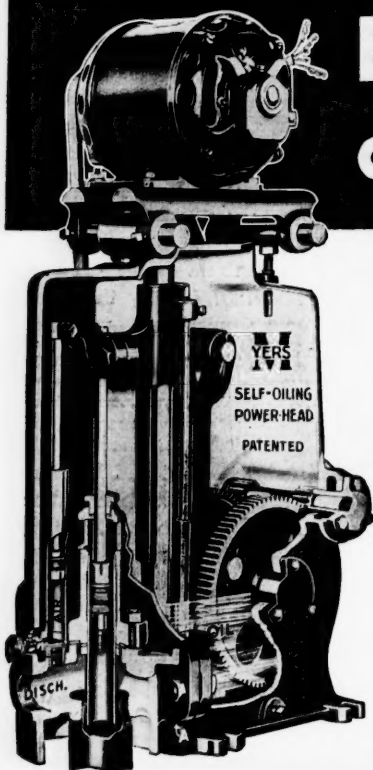
Railroads are constantly shortening freight schedules. Whereas eight days were required for a fast freight train from Kansas City to Los Angeles less than ten years ago, today, delivery is effected on the sixth day. In 1925, California fruits required 154 hours in which to reach Chicago and the same journey can now be accomplished in 130 hours, while other similar freight schedules have been reduced proportionately.

The utilization of up-to-date methods and equipment has played a large part in price reductions, for in such commodities as Fuller's earth which previously required packaging, tank cars are now used. Similarly, whereas formerly only ten automobiles could be accommodated in each car, now eighteen can be loaded.

Competition for Elevated Vehicular Highway Designs

The American Institute of Steel Construction announces a national competition to produce an improved design for elevated vehicular highways that will conform to the architectural requirements of city streets.

It is pointed out that over 70% of the world's automobiles are owned in this country and the automobile bears a heavier proportion of the taxes than all other industries. And yet the United States is far behind many countries in providing proper highways. This is particularly true of congested city centers, where speed is curtailed to a pace only slightly greater than the horse-drawn vehicles of earlier days. Widening streets does not improve the situation, it only increases the traffic hazards. The program New York City has embarked upon demonstrates that congestion can be relieved, and at a reasonable cost comparable to that of street widening.



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Dependable Performance—that's what the name MYERS stands for in pumping equipment.

Regardless of what others may do, we continue to build Myers Self-Oiling Power Pumps for more years of better service.

Our quality standards speak for themselves in excellence of materials, superiority of construction, outstanding improvements and dependable performance. Our style and size range is widely diversified. Prices are still exceedingly favorable.

If you are interested in improving your water facilities for home, farm or factory, write us for catalog and complete information.

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ASHLAND, OHIO.

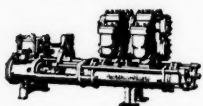


PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

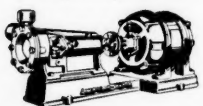
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CENTRIFUGAL PUMPS . . Split and solid case types.



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TURBINE PUMPS . . Only one wearing part, a perfectly balanced impeller.

Years ago our old name—American Steam Pump Company—was entirely appropriate, for then we made steam pumps only.

But now we also build centrifugal pumps, turbine pumps and power pumps for many services.

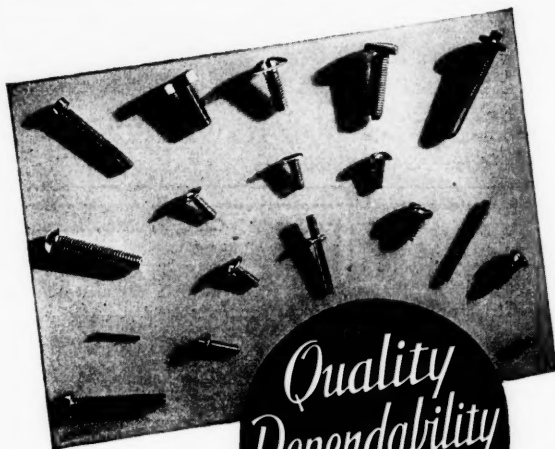
And so to better associate our Company name with our long established trade name—American-Marsh—by which most of our equipment is known, we have recently changed our Company name to that used in the signature below.

However, there has been no change in financial structure . . . no change in management . . . no change in quality standards maintained for more than 60 years . . . no change in address.

May we be favored with your next pumping inquiry?

AMERICAN-MARSH PUMPS, INC.

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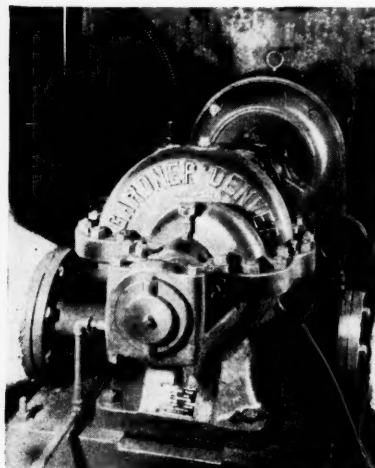
QUESTION

Are you getting full returns—in higher efficiency, lower power costs—from your investment in centrifugal pumps?



ANSWER

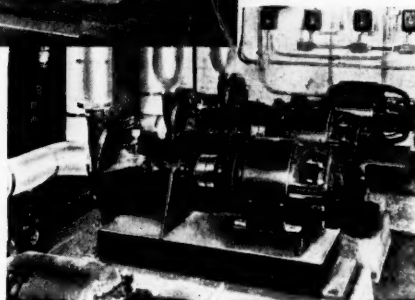
You are if you're using Gardner-Denver Centrifugal Pumps. Gardner-Denver Centrifugals combine advanced engineering, high quality materials, and expert workmanship. They are backed by Gardner-Denver's reputation for integrity in manufacture—established through generations.



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GARDNER-DENVER

Mayari R

(Continued from page 39)

industrial atmospheres in many different localities have shown that the corrosion resistance of Mayari R steel is fully two or three times that of copper bearing steel, that is, of the order of six times that of a plain steel.

Mayari R steel can be readily welded by any of the common methods, such as the electrical resistance method and all fusion methods. Under resistance welding the results of spot welding, seam welding, and flash butt welding gave satisfactory results; compared to soft auto body sheets the shear tests were proportionally higher, while the single spot twisting test naturally was lower. The results indicate that Mayari R steels are entirely suitable for all types of electrical resistance welding.

Extensive tests were also carried out with Mayari R steels to determine the effect upon the weldability of conditions such as the temperature of the parent metal, (from 0 to 400 deg. F.), thickness of section, hardenability, and stress relieving subsequent to welding. Favorable results were obtained in all these tests. Welding can be carried out with mild steel electrodes, and reinforcements can be added to the welds where base metal strength is called for. A large number of high strength electrodes are also available, which deposit weld metal of high strength. Some of these contain alloys which produce weld metal with chemical analysis approaching that of the base metal.

Atlantic Deeper Waterways Association Annual Convention

The Atlantic Deeper Waterways Association will hold its 30th annual convention October 15-17, 1937. Sailing from Baltimore to Norfolk, there will be a special cruise to Hampton Roads and Chesapeake Bay with intermediate stops at Portsmouth, Newport News and Yorktown.

Addresses and formal papers on waterways and transportation topics together with other business matters will be transacted during the trip.

Among the subjects anticipated to occupy a prominent position on the agenda is the Atlantic Intra-Coastal Waterway and its allied ports and waterways which, with such graphic illustration as this trip will permit, will be of unusual interest.

Cottonseed Oil Exceeds Estimates

Expectations that demands for cottonseed oil in August would be in the neighborhood of 250,000 barrels, were shattered by the release of figures indicating the amount to have been 316,781 barrels. This was an increase of 97,522 barrels over the amount for July, but was 34,167 barrels below the consumption for August 1936.

Imports for the month were 28,735 barrels as compared to 36,211 barrels for the corresponding month last year.

Removal of Offices

In the MANUFACTURERS RECORD for September, there was published an item which read as follows:

"Effective September 1, 1937, the following officials of the Newport News Shipbuilding and Dry Dock Company will transfer their offices to Newport News, Va.: Roger Williams, Vice President; James Plummer, Purchasing Agent; H. K. Peebles, Assistant Purchasing Agent; D. G. Moorhead, Hydraulic Sales Engineer. The Treasurer and a representative of the Vice President's office will remain at the New York offices, 90 Broad Street. The Purchasing Department will also be represented by Mr. J. M. Clawson, Assistant Purchasing Agent."

Unfortunately, a mistake occurred in the handling of type, and the above appeared as part of another item to which it had no relation.

A New Rayon Pulp Mill

The Southern Kraft Corporation, a subsidiary of International Paper and Power Company, is constructing the first sulphate process rayon pulp mill in the South at Springhill, La. This will be in addition to the 650 ton daily capacity sulphate mill for kraft paper located at the same place.

Hitherto, practically all wood pulp for rayon has been produced by the sulphate process in the north.

INVESTIGATE THE ECONOMIES AND ADVANTAGES OF—

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THE FREDERICK IRON & STEEL CO. —:— FREDERICK, MD.
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MANUFACTURERS RECORD FOR

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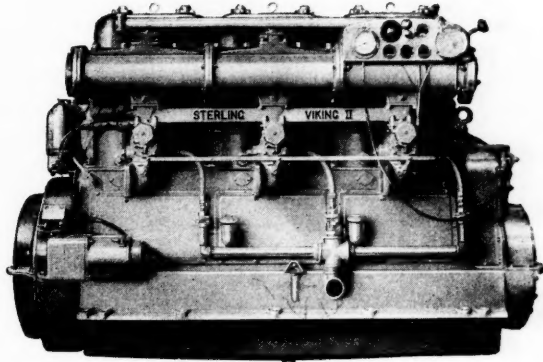
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WAYNESBORO, PA.
FRICK Co.

The Zinc Industry Gets Busy

(Continued from page 41)

Zinc Stocks Reduced

The zinc industry is working under pressure to keep its customers supplied. In 1936 metal production totalled 523,000 tons, compared with 431,000 tons in 1935, an increase of 21%. But this does not tell the whole story, for the increased demand was not fully evidenced until the final quarter of 1936, with the result that not only did customers take the entire year's production, but also reduced by almost 50% the stocks held by smelters. In spite of increased production in 1937, which at the end of July was 14% above the tonnage produced in the same period last year, buyers' demands have reduced stocks still further. Producers of zinc by the distillation or retort process, as well as the electrolytic producers, have been hard at work for some time adapting their operations to the increased demand. During the three months ending July 31, total production was brought to the point where it kept pace with total shipments.

Zinc in the Southern States

An interesting development in the southwest was the transfer of the smelting activities of the Illinois Zinc Com-

pany to the Texas Panhandle from Peru, Illinois, where operations had been maintained for 66 years. The new smelter, located at Dumas, right in the natural gas belt, commenced operations in the Fall of 1936. This smelter is to handle the concentrates from the company's mine in New Mexico which is now being expanded to handle zinc concentrates from complex ores carrying gold, silver and other residue value.

The increased production of metal has of course resulted in increased activity in the ore producing sections throughout the country. The Tri-State mining district, which comprises the southwestern part of Missouri, the southeastern part of Kansas, and the northeastern part of Oklahoma, is a good example. Zinc concentrates from the mines of this district represent close to 40% of the total United States mine production of zinc.

Shipments for the first half of 1937 were over 10% ahead of the same period in 1936 in tonnage, and 50% in value.

Of special interest is the draining and re-opening of the long idle mines near Webb City and Oronogo, just northeast of Joplin, Missouri. These renewed operations, which started in 1935, were responsible for the increased shipments from Missouri during 1936.

In the Tri-State field mechanical loading is undergoing an interesting devel-

opment. Rope haulage installations have increased, and scrapers as a means to reduce costs are becoming more general. In the reopened field in Missouri, one of the operations lends itself to open pit mining with power shovels, which is now being practiced.

Chemical Industries Exposition

As previously announced, the sixteenth Exposition of Chemical Industries will be held in the Grand Central Palace, New York, from December 6 to 11, 1937, and latest information promises the many exhibits will be more interesting and complete than in many years.

Purity and uniformity of product, low cost production and efficiency in the handling of materials, will be the dominating themes of the Exposition.

In addition to the usual display of chemicals and chemical products, there will be exhibits of plant equipment and chemical process machinery of the most advanced design.

Other sections will include such features as equipment for handling materials demonstrating the most up-to-date labor saving devices and space saving advantages attainable in modern warehousing.

Altogether, the Exposition should prove of interest and value to visitors for its assemblage under one roof of so many things pertinent to the well-being of industry.

Charles F. Roth, who has been in charge of the previous expositions, is serving as director.



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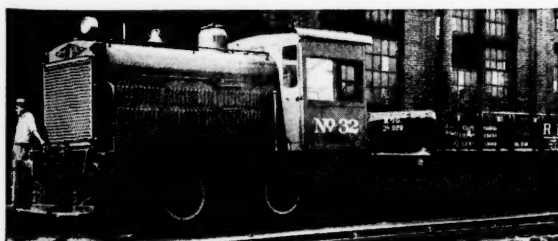
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\$20,500,000 for Oil Lands and New Texas Refinery

(Continued from page 33)

Gulf Coast, the principal of these being Atreco, on the Neches River, near Port Arthur, where the new refinery is located. Construction, involving an expenditure of approximately \$6,000,000, started here the middle of 1936 and the refinery went into operation in April of the present year. Rated capacity is 18,000 barrels of crude oil a day.

The refinery property covers an area of 566 acres. Dock facilities enable two tankers of 525 feet each to load at one time, at a rate of 20,000 barrels an hour. Tanks used for storage of refinery products, preparatory to loading on tankers, have a capacity of 692,000 barrels. The 2,000,000 gallons of fresh water required daily for the operation of the refinery are brought nine miles from the source by means of a canal specially built for this purpose by Texas Public Service.

The Atreco refinery is one of the first in the United States to include a polymerization unit. A comparatively new development, polymerization involves the production of high-grade gasoline from gases generated during the refining process, and previously wasted or used for refinery fuel. In addition to increasing

the total amount of gasoline obtainable from a given amount of crude petroleum, the gasoline produced possesses high anti-knock qualities and when blended with other gasoline raises the anti-knock value to produce a fuel particularly well adapted to use in modern, high-compression engines. The Atreco polymerization unit processes 8,000,000 cubic feet of gas a day, to produce 42,000 gallons of gasoline.

To handle products of the Atreco refinery for the North and South Carolina and Virginia market, the Company started construction of a new terminal near Wilmington, North Carolina, in February of this year. The first shipments to the new terminal were made in April. Docking facilities enable tankers to unload at from 3,000 to 4,000 barrels an hour. Storage capacity of the terminal is 3,810,000 gallons.

Coincident with its expansion program in the South and Southwest, the Company now has under construction at Chester, Pennsylvania, on the Delaware River, an 18,500-ton tanker which will be the world's largest welded ship and is scheduled for delivery before the end of the year. A second tanker of the same tonnage and welded construction has been ordered.

The capacity of each of these new tankers will be 156,000 barrels of gasoline

which their cargo discharge pumps will enable them to discharge at the rate of 15,000 barrels an hour, approximately three times the usual rate. Turbo-electric engines developing 5,000 horsepower will give the ships a speed of over 13 knots, enabling them to make the trip between Texas Gulf ports and Philadelphia or New York in the unusually fast time of six days.

During 1936 and the first six months of the current year the Company has expended more than \$14,500,000 for the purchase or lease of lands in oil-producing areas of the Mid-Continent, New Mexico and Texas, with a resulting increase of 25 per cent in the amount of crude oil it produces.

The Company not only produced more crude oil during the first half of 1937 than during the same period of any previous year, but this production represented a larger proportion of the refinery crude oil needs than during the first half of 1936, although more crude oil was run at the refineries during the first half of 1937 than during any previous like period. During this same period the proven crude reserves underneath the Company's producing wells were increased 30 per cent. Gallons of products sold during the first six months of the current year set a new record for any first-half-of-the-year period.

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